Norwest Mortgage bets its future on making its legacy current. Servers & PCs, page 67

CA, IBM and Sybase are slated to introduce new databases this fall, as they continue to chase market leader Oracle. Page 16

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Novell greases upgrade skids

▸ Prompts migration with tool giveaway

By Laura DiDio

DON'T LOOK NOW, but users say Novell, Inc. has finally made a smart marketing move.

The beleaguered networking vendor last week said it will give away an $800 migration tool from Simware, Inc. to entice users to migrate from NetWare 3.x to IntranetWare 4.x.

"This changes everything," said Ben Lamboy, vice president of network operating system engineering at The Chase Manhattan Bank Corp. in New York. "Dread is the first thing that comes to mind when I consider migrating 90% of my 25,000

Novell, page 12

STELLA JOHNSON

Ad Life's Josh Turiel: "Deals like this shore up confidence"

TODD DAVIS

Brandon Stanley, Tim Traxson and Jenny Coggin are graduates of J. B. Hunt's retention program, run by company CIO Bob Logan

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R/2 USERS WON'T BE IGNORED
SAP responds with U.S. support, upgrade services. Next page

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Skeptics eye unionization effort in Silicon Valley. Page 2

Win some, lose some
Microsoft users skittish about Win 98, await NT 5.0. Page 6

FORGET SPAM; WATCH OUT FOR SLAM
Long-distance carriers aim illegal scam at businesses. Page 14

Cure for IS image: marketing

By Jaikumar Vijayan

BRACE YOURSELVES, IS managers. There's a Marketing 101 class in your future.

As information systems shops everywhere struggle to communicate their services and earn their keep within large organizations, more of them are turning to professional marketing firms for help.

The goal is to "crush the image of IS as being an overpriced, low-value environment

IS marketing, page 16

THE 3R'S

RETENTION, RECRUITMENT, RAIDING

IT'S DARN NEAR impossible to get IS recruits to move to rural Arkansas — 100 miles from a big city — and keep them there, so trucking company J. B. Hunt stopped trying. Instead, it switched to developing homegrown talent in its own back yard, which cut IS staff turnover from 25% to 2% per year.

That's the kind of creative approach you'll find in *Computerworld*'s monthlong series of reports on IS staffing issues, which kicks off this week with 15 cost-effective tips for keeping good people.

Managing, page 72

Lethal sting of forgotten mail

▸ IS examines policies as costly suits pile up

By Barb Cole-Gomolski

CORPORATE AMERICA slowly is waking up to the fact that something as seemingly mundane as electronic mail can turn into a major nightmare.

IS departments are on guard as workers and business partners catch on to the fact that E-mail records can produce a gold mine of damaging evidence, be they prejudicial remarks or damning corporate admissions.

At least one recent court case held that E-mail can be viewed

E-mail, page 117

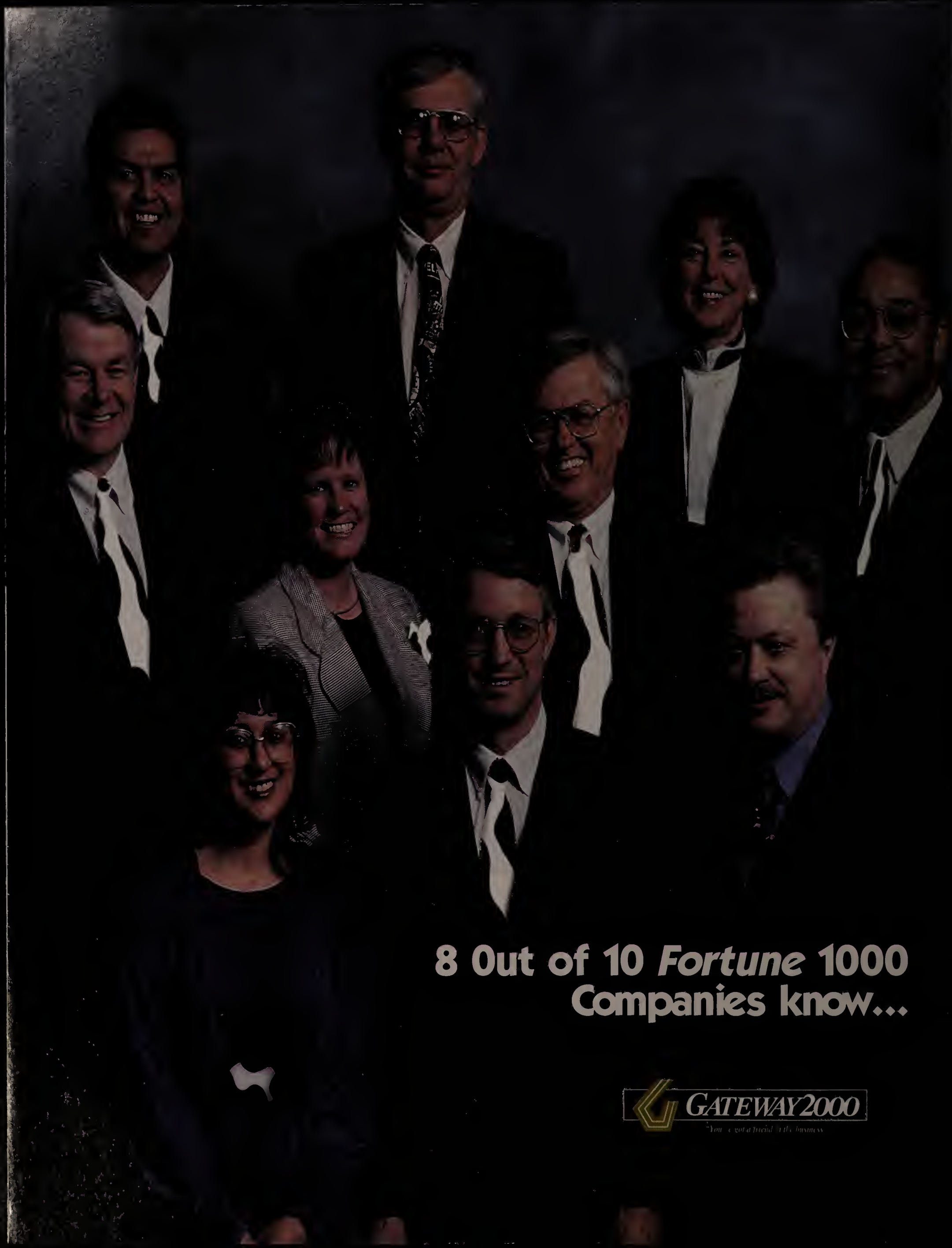
MARK KATZMAN

Want to fill a job in **Paducah?** **Foreign computer experts** may be your best bet. Systems integrator **Mastech Corp.** lures IS professionals from overseas to **talent-starved** areas of the U.S. with good pay and the promise of travel under its **"See America"** plan.

Sundararajan Parameswaran trekked from Mumbai, India, to Dallas and then to Montreal, Indianapolis and St. Louis. **"I'm ready to travel anywhere,"** he said.

Corporate Strategies, page 39

NEWSPAPER



8 Out of 10 *Fortune* 1000 Companies know...

GATEWAY2000

"You've got a friend in the business"

Jayne Mason isn't sold on webmaster certifications. Others disagree. Careers, page 94

Meag Power found a middle road to data warehousing, Meri Lea Miller says. Corporate Strategies, page 39

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R/2 users demand attention; SAP listens

By Randy Weston

IT SEEMS THE forgotten children of the SAP AG family are back in favor with their German vendor.

Users of SAP's R/2 mainframe software have successfully lobbied the vendor to pay more attention to them.

"The R/2 user community in the U.S. is a bit more organized now, and we are saying as a group to SAP, 'We have legitimate concerns. What are you going to do for us?' " said Scott Weber, manager of technical services at Harnischfeger Corp., a mining and heavy equipment maker in Milwaukee.

The tactics are paying off. SAP America in January formed a U.S. R/2 support division to help users deal with upgrade, migration and support issues. It also beefed up migration tools. But SAP has been very clear that it wants R/2 users to move to R/3 as soon as possible. Support for R/2 is scheduled to end in 2004, R/2's silver anniversary.

"These are our customers as well, and we will do everything to make their transition into the 21st century as easy as possible," SAP Chairman Hasso Plattner assured R/2 users at the recent SAP user group conference.

NO FAIRY GODMOTHER

That is a long way from last year's user group conference where R/2 users were treated like Cinderella as their stepmother whisked their R/3 siblings off to the ball. But unlike Cinderella, it wasn't a fairy godmother who saved them. It was their own weight.

"Now that the R/3 business is humming and not as resource-constrained, SAP can go back and help R/2 users. They have the luxury to do that now," said Jim Shepherd, an analyst at Advanced Manufacturing Research, Inc. in Boston. "[The users] are now a significantly reduced group of pretty large and important companies. SAP has a responsibility to make sure life is as painless as possible for them."

Shepherd estimated that of about 60 North American R/2 users, one-fourth are at some stage of migrating to R/3. Another quarter of those users has made the decision or is evaluating a move to R/3. The remaining half is waiting until year 2000 and other priority problems are out of the way.

The list of R/2 users includes such giants as The Dow Chemical Co., Du Pont Co. and Eastman Chemical Co. Many of those companies said they are just now getting their money's worth out of R/2.

What's keeping R/2 users on the mainframe

- Year 2000 issues are a bigger priority
- Still getting return on investment
- R/3 not scalable enough yet
- Functionality of R/2 is better than R/3

"We didn't start our R/2 project until January 1992, and we didn't finish until September 1995," said Jack Spurgeon, vice president and director of information technology at Eastman Chemical in Kingsport, Tenn.

R/2 users also are waiting to move to R/3 when the cost is justified and client/server systems can handle their data and user loads.

Weber said only a mainframe-based system could handle the data load of 600,000 different materials (10,000 of which are processed nightly) that are used to make electric mining shovels and large construction cranes.

But users applauded SAP for recognizing that for some companies, a migration at this point isn't warranted. They cite the vendor's efforts to port R/3 to a mainframe environment [CW, July 7] as an example.

"When they first announced that, I got excited about it," Spurgeon said. "Here is a way for us to get to R/3 but still have a similar environment we have today."

But many of the R/2 users said that won't be until after the turn of the century. Most said they are knee-deep in year 2000 conversions on other legacy systems, and an R/3 migration is low on their priority lists (see chart). □

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UP FRONT

Enemy lines

Pogo said it best: "We have met the enemy, and it is us."

For more than a year now, we've chronicled the growing skills shortage in corporate IS. It has reached crisis proportions. An Information Technology Association of America survey found that two-thirds of the respondents said the lack of skills is a barrier to future growth.

Our annual salary survey published last week showed that double-digit percentage pay increases were the norm in corporate IS this year. Our careers reporter Julia King this week examines the trend toward companies recruiting computer professionals anywhere they can find willing bodies (see story, page 4). And our Managing section begins a monthlong series on how to recruit and retrain people (see story, page 72).

Not too long ago, the shoe was on the other foot. As recently as 1993, companies were wringing their hands over what to do with untrainable Cobol programmers who wouldn't make the leap to C. Outsourcing deals and their accompanying layoffs were ravaging corporate IS staff. And the drumbeat of corporate downsizing pounded out its message: Everyone is expendable.

Lack of skills is a barrier to growth.

I remember speaking to a group of MIT techno-MBAs at that time, the best and the brightest of future IT leaders. I asked them how many were planning careers in corporate IS. Of 40 students in the class, only three raised their hands. The rest? Future consultants of America.

That's a big problem. I submit that one cause of the skills crisis today is the downsizing and cost-cutting of years ago. As corporations began to treat IS like a utility in the early '90s, college computer science enrollments sank and the profession lost its luster. Now we're crawling to those people, begging them to stay. And they're responding, not surprisingly: Where were you when I needed *you*?

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE
BY RICH TENNANT

"That reminds me - I have to figure out how to install our CD-ROM and external hard drive."

E-mail Rich Tennant at the5wave@tiac.net

Union targets IS contractors

By Julia King

RIDING HIGH from the recent UPS strike, union organizers in Silicon Valley have turned their attention to a large and improbable group of prospective members: contract programmers, software developers and other temporary high-tech workers.

But more than likely it will be a hard sell, said contractors and information systems managers across the country.

"I don't think anybody I know would go for a union. We're all too independent," said Mac Sterling, a Boston-based programmer and project manager who has worked as a contractor since 1983.

"It certainly seems like the wrong way to go," said David Maynard, a contractor in Ballston Spa, N.Y. "You can make a lot of money as an independent. But as soon as a union gets in there, I think the salaries would all get averaged out," he said.

HIGH-TECH UNION

As envisioned by organizers at the South Bay AFL-CIO Labor Council in San Jose, Calif., a high-tech union would operate along the lines of a 19th-century guild or trade association, whose dues-paying members would share information about rates and new projects.

"We're also exploring providing access to health care benefits and pension planning, and helping people get access to training and placement," said Chris Benner, a research associate at Working Partnerships USA in San Jose. The group formed two years ago to broaden the role of unions in Silicon Valley.

Benner said the union's focus on high-tech stems in part from the industry's increasing use of temporary, contract and part-time workers, which was a central issue in the United Parcel Service of America, Inc. strike. Ultimately, UPS agreed to convert thousands of part-time jobs at the company to full-time positions.

A recent Working Partnerships study found temporary employment growing faster in Silicon Valley than anywhere else. At the same time, real wages were declining, the study found.

Profile of an independent IS professional

- Male
- 36 years old
- 17 years of education
- Holds 2 or 3 certifications
- Home owner
- Married with children
- Annual income exceeds $100,000

Base: 270 independent consultants

Source: The Information Elite, Redwood Shores, Calif.

For example, in 1994 the average hourly wage for all technical occupations, which includes computer programmers, was $12.69, more than $2 less than it was in 1989. "Even in nominal terms, that's a decline of 27.9% adjusted for inflation," Benner said.

But he also said that, for now, the vast majority of independent software professionals are having few, if any, problems finding work that pays well. In fact, 190,000 IS positions are unfilled at large and midsize companies because of a severe technical labor shortage, according to the Information Technology Association of America, a consortium of high-tech vendors.

"What we're really trying to do is publicize contingent employment as an issue and concern for society as a whole," Benner said. "Things are really booming in Silicon Valley now, but what happens in the next downturn?"

LITTLE IMPACT

For their part, IS managers said they foresee a union having little impact on how they hire or how much they pay contract programmers and other IS professionals. "From an IS manager's perspective, there really should be very little impact at all, since most large companies deal only with established contracting agencies. It's the agencies that would have to deal with the brunt of any union activity," said an IS manager at a large Midwestern insurance company who requested anonymity.

Another IS manager who requested anonymity said his company, a multibillion-dollar pharmaceutical manufacturer, also deals exclusively with contracting agencies.

"We've worked to almost eliminate independent contractors and hire only contractors who are employees of agencies. If contractors are unionized within the companies employing them, I'd expect to be pretty well insulated," he said. □

Webserver software:
A comparison

Are you looking for advanced management tools or a good development environment? We survey eight packages.

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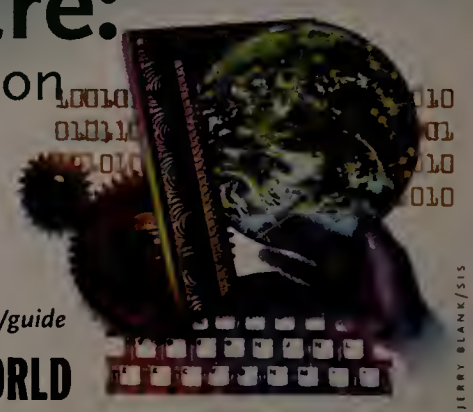


JERRY BLANK/SIS

Corrections

Because of incorrect information provided by a vendor, the Software section story "Software aids in design of training material" [CW, Aug. 18] inaccurately identified the developer of Designer's Edge Pro 2.0. The developer was Allen Communications in Salt Lake City.

Because of an editing error, a brief in the Aug. 18 Data Warehousing section incorrectly mentioned Dun & Bradstreet Software. That company has changed its name to Geac Computer Corp. The brief should have referred to The Dun & Bradstreet Corp.'s data collection unit, known simply as Dun & Bradstreet.

Users get peek at PeopleSoft 7

By Randy Weston

USERS OF PeopleSoft, Inc.'s business process automation software will finally get a close look at the revamped PeopleSoft 7 business application package at the user conference this week in Orlando, Fla.

Users also will get a sneak peek at new functionality coming with PeopleSoft 7.5 in March, including enhanced payroll features for multinational companies. PeopleSoft 7 is mainly an overhaul of the software's architecture — from two-tier to three-tier client/server — with little added functionality.

Users have been waiting a year for PeopleSoft to move to a more scalable three-tier architecture, which will shift most of the processing work from the desktop to an application server.

"PeopleSoft has been promising performance, performance, performance. Now we'll see if they can deliver," said Buck Buchanen, vice president of information systems at Snelling & Snelling, Inc., a Dallas-based staffing agency.

PAYROLL PERK

PeopleSoft's two-tier architecture has been "a performance hog and a pain for us and a lot of other people," Buchanen said.

"It takes four hours to run a report that should take 20 minutes. The three-tier system should take care of that," he said.

Release 7.5 will add functionality to the financial and human resources applications.

One significant enhancement is a deal with payroll giant Automatic Data Processing, Inc. (ADP), in Roseland, N.J., to co-develop country-specific payroll management applications, mainly for the European market.

The move is in line with PeopleSoft's push into global markets, where it trails Europe-based competitors SAP AG and The Baan Co.

Partnerships with companies such as ADP that have a strong presence in Europe should help PeopleSoft penetrate that market, said Judy Hodges, an analyst at International Data Corp. in Framingham, Mass.

She said users and analysts at the conference will be eager to see what steps PeopleSoft is taking to create more multilingual and multinational applications, because most companies are quickly becoming international players. □

Bay to ease network management, monitoring

▸ *Tools will simplify VLAN setup, workflow*

By Bob Wallace

BAY NETWORKS, INC. plans to upgrade its network management packages to make it easier for Bay users to monitor, manage and troubleshoot their enterprise networks.

The new versions — Optivity Network Management System 8 and Optivity Campus 6.2 — give users centralized management for several Bay networking products that were released earlier this year.

Optivity 8, which is Bay's enterprise network management system, will include NETarchitect, a module to help information systems managers set up Asynchronous Transfer Mode (ATM) networks, said sources who were briefed on the announcement and who requested anonymity.

NETarchitect automates a lot of the setup for virtual LANs (VLAN) on packets as well as VLANs based on ATM cells — the tougher of the two tasks.

"I'll be able to more easily troubleshoot the system from my home. The X Windows interface I have to use now ... is far from smooth and easy."

– Ken Martig, Zymogenetics

"By using common screens, the system reduces complexity for IS managers," said John Morency, a principal at The Registry, Inc., a consultancy in Newton, Mass. "Bay's offering one management process to learn vs. two."

Optivity 8 will also let IS managers use workflow products to monitor and troubleshoot Bay routers from a World Wide Web browser, the sources said. It supports Bay's new C50N Ethernet and C50T Token Ring workgroup switches.

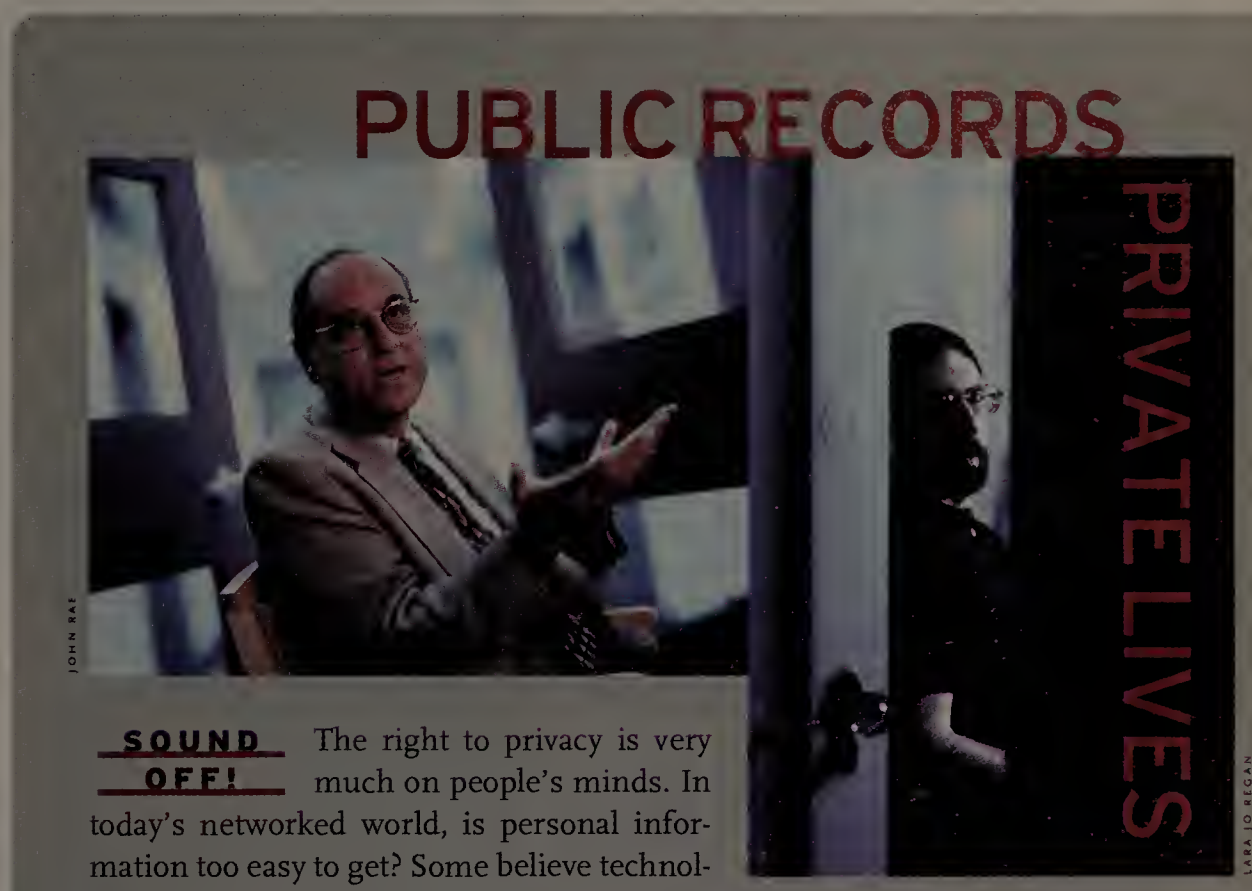
WEB SUPPORT

Ken Martig expressed enthusiasm about the Web interface.

"I'll be able to more easily troubleshoot the system from my home," said Martig, systems administrator at Seattle-based Zymogenetics, Inc., which tests and manufactures insulin and other pharmaceuticals. "The X Windows interface I have to use now to access the system is far from smooth and easy."

Optivity Campus is Bay's midrange network management system. Sources said with Version 6.2 it gets support for switches Bay announced earlier this year, including the SwitchNode and the BayStack 350, an autosensing 10M/100M bit/sec. switch. Bay also announced a device that will let IS managers use Remote Monitoring (Rmon) and Rmon2 to monitor their networks. Series 2000 Fast Ethernet Optivity StackProbe works in full-duplex mode.

Pricing and availability for the products weren't available. □



SOUND OFF! The right to privacy is very much on people's minds. In today's networked world, is personal information too easy to get? Some believe technology has changed the meaning of the word "public" so much that we must reexamine policy on access to personal records. Others think the Internet is simply an easy target for fans of big government. A direct marketer and a privacy advocate debate the issue. In Depth, page 88

Robert Wientzen, Direct Marketing Association (at left); Lauren Weinstein, Privacy Forum

FBI head backs mandatory key recovery

By Sharon Machlis

FBI DIRECTOR Louis J. Freeh last week called for a mandatory system of encryption key recovery within the U.S., a move vehemently opposed by the computer software industry.

Freeh said such a system is vital so law enforcement officials can have timely access to communications in criminal investigations.

But software industry officials say requiring key recovery will simply boost sales of encryption products made overseas, where such restrictions don't apply. Privacy advocates also say the government has no right to mandate that someone store a personal encryption coding/decoding key with a third party.

WHITE HOUSE

The Clinton administration previously had pledged it would seek key-recovery plans only for software sold overseas, not domestically.

After Freeh's testimony, a spokesman for Vice President Al Gore said the White House doesn't support mandatory domestic controls on all encryption.

Freeh said the McCain-Kerrey bill now pending in the Senate — considered too restrictive by industry and privacy advocates — isn't strong enough to ensure that investigators will have timely access to encrypted messages.

Last year, encryption that couldn't be cracked thwarted FBI investigations in 12 cases, and that number is expected to rise, Freeh said.

Widespread use of unbreakable encryption "clearly will undermine law enforcement's ability ... to combat dangerous criminals and terrorists," he said. □

From wrenches to routers

▸ *Career swap has Continental Airlines' Andy Hogoboom fixing networks instead of planes*

By Bob Wallace

AFTER FIVE YEARS as an employee at a ski rental shop and a white-water rafting guide, Andy Hogoboom decided it was time for the first of two career changes.

After turning wrenches as an airline mechanic at Continental Airlines, his career path took an unusual turn. A penchant for technology led him to courses in PCs and networking technology and eventually to certification as an administrator of Novell, Inc. NetWare.

JOB IN IS

Hogoboom is now a senior systems analyst at the twice-bankrupt airline. He considers his biggest accomplishment to be the job he has done as project manager for a 1,000-person network that comprises 1,065 network devices, 461 new PCs, 97 printers, nine file servers, 64 hubs, four routers and 22.7 miles of cable.

"When that was completed, I felt like I was reclining on an island beach with my toes in the sand and sipping a pina colada," the 39-year-old manager recalled. "Then a dark cloud covered the sun. Behind the cloud was a huge swarm of users looking for information on what they could do with the network."

To help them, he formed a 20-person, cross-departmental committee that met every two weeks to discuss user needs and potential projects. Now the group meets once per month or as needed.

Hogoboom is far from an anomaly, said an information technology consultant who specializes in staffing issues.

"By the end of this year, 5% to 7% of all IT staff in midsize to large companies will be from nontraditional IT backgrounds," predicted David Foote, principal at Cromwell Partners LLC in Stamford, Conn. "People changing careers to enter IT will become more common over the next five years."

In the years before his switch to information systems, Hogoboom focused on becoming an expert in various aspects of airline operations. Despite his accomplishments, he said he was too specialized. "I needed to diversify to make myself more marketable," Hogoboom said.

In 1994, the airline was struggling out of its second bankruptcy, and Hogoboom feared being a specialist in a small market if the airline went under. He picked up a bachelor's degree in aviation business, and knowledge and skills in PC operating systems and support. Before he moved into IS, Hogoboom paid to become a Certified NetWare Administrator (CNA) because Continental was a Novell shop. "[The CNA] training was a well-timed step in a new career direction," he said.

In February 1995, another of many reorganizations was under way at Continental, and Hogoboom joined Technical IS as a senior systems analyst. His boss, John Stelly, is glad he did.

"Andy's one of our star performers," said Stelly, who is director of systems and training. "He is extremely detailed-oriented. He's one of the few people I can give general guidance to on a project and have him exceed expectations."

TECHNICAL SKILLS

Stelly agrees that people with technical backgrounds have skills that will help them in IS. "We've brought people in who are self-taught, and we've grown our own. Both have been successful," he said.

Much of the training and experience Hogoboom amassed as an airline mechanic could be transferred to the multitude of projects in which IS is involved, he explained. "Basic troubleshooting still helps, and sizing up a problem by looking at it from a systems perspective is invaluable," he said.

Hogoboom recommends others in technical fields such as mechanics take a hard look at IS careers, networking in particular. "Everyone is building networks, which makes it a vast opportunity." □

CHARLES EDWARDS

- Name: Andy Hogoboom
- Current job: Senior systems analyst
- Employer: Continental Airlines
- Fantasy job: Formula One racer
- Youth hobby: Racing dirt bikes
- Strangest job: Worked for three competing ski rental stores in one resort over several years. Also served as a white-water rafting guide: "It was a tough job, but someone had to do it."
- Reason his career led him to be an airline mechanic: "I liked things that had precision, run fast and are technically oriented."

Five-week class turns neophytes into coders

▸ *Year 2000 demand prompts recruitment*

By Julia King

MATT LARKINS was working as a health instructor at a Michigan auto plant when he came across Electronic Data Systems Corp.'s advertisement for entry-level positions requiring absolutely no experience.

That was six months ago. Today, Larkins earns about $30,000 per year analyzing and rewriting code on a year 2000 project team at an EDS client site.

So do 46 other career changers, all technology neophytes who were hired by EDS's Raleigh, N.C., office, which put them through an intensive five-week training course before dispatching them to fix customers' year 2000 problems.

After a year, EDS said, the new hires can expect to earn the same as an information systems professional with a four-year computer science degree and equal experience.

"It's a proven fact that non-technology people can learn how to program and be effective at it. And right now, there's a lot more work than there are people to do it," explained Dewey Cassell, who manages the Raleigh program.

In response to its ads, EDS has received about 500 resumes from people who want to land an entry-level programming job at the Plano, Texas-based services company. EDS is also offering the program in Atlanta and Boca Raton, Fla. Classes will start in Mexico in January, and there are plans to export the training to Ireland as well.

COMPUTERWORLD

For these and other related links, point your browser at *www.computerworld.com/links/970908trainlinks.html*

► ITTAlink — Information about the IT Training Industry, events, training centers, resources and industry links: *www.itta.org*

► Learning Aids: *http://training.cit.cornell.edu/laids.html*

► Technology Training Programs: *http://training.cit.cornell.edu/road.html*

Applicants must have at least a two-year college degree and have taken at least one college-level programming course, most likely as an elective. Larkins, for example, has a degree in physical education but had taken an elective course in Pascal programming in college.

EDS screens candidates for what Cassell called "a genuine interest in programming."

"We look for things like whether they've taken a recent computer course or have their own Web page or volunteer at a school to help set up computers," he said. Applicants must also pass a logic test.

Once accepted, the trainees are hired and begin classes in structured programming concepts, EDS's year 2000 methodology and tools, and JCL and Cobol programming.

After the five weeks, the new hires are paired with mentors and placed on year 2000 project teams at client sites. So far, customers have been receptive to the new techies.

"There's a certain recognition that a lot of what is involved in year 2000 work is somewhat rote and can be done by someone with little experience," Cassell said.

"We've been very candid and up-front with customers, and there have been no objections," he said.

Analysts agreed.

"Cobol is not a difficult programming language, especially as it involves year 2000, and because EDS has a year 2000 methodology in which you write the code a certain way and it comes out fine," said Susan Scrupski, an analyst at Technology and Business Integrators, Inc. in Woodcliff Lakes, N.J. □

& **Trucker J. B. Hunt develops local IS talent to work in rural Arkansas. Page 74**

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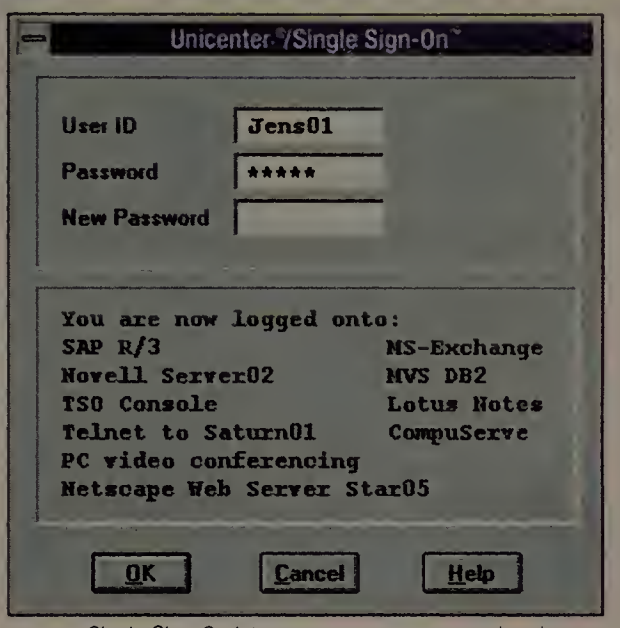

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Windows migration track a mixed bag

▸ *Users take cautious route to Windows 98 and NT upgrades*

By April Jacobs

TWO YEARS AFTER Microsoft Corp. released Windows 95, almost half of Windows users still run its venerable predecessor, Windows 3.x.

Meanwhile, user interest in Windows 98 has been muted compared with the frenzy over Windows 95. And analysts said the migration to Windows NT, at least on the desktop, is sluggish.

The result: a hodgepodge of old and new versions of the Windows operating system on corporate America's desktops next year.

In fact, San Jose, Calif.-based Dataquest last week said the Windows 95 installed base isn't expected to exceed Windows 3.x until the end of this year.

Dataquest also revised its Windows NT forecast, dropping it from 11 million desktops by the end of this year to about 8 million.

The slow move to Windows NT is the result of the hype surrounding Microsoft's delayed Windows NT 5.0, which isn't slated to ship until the second half of next year, said Dataquest analyst Chris LeTocq.

Phil Easter, technology strategist at Greyhound Lines, Inc. in Dallas, said he will hold out on migrating his desktops to Windows 95 "for as long as I can." Easter said 80% of his firm's 1,500 end users still run Windows 3.1.

STEVE CURTIS

Universal Underwriters' Wyette Spotts: The company migrated to Windows 95 "because we wanted something consistent and reliable"

"Windows 3.1 works fine, and it suits our purposes. I'm still looking for vendors who build 16-bit applications so I have compatibility with legacy applications," Easter said.

Some businesses have made a decisive move to Windows NT based on factors such as hardware performance requirements, availability of applications and a belief that NT is the corporate desktop of the future.

"Some of our legacy systems didn't function well with Windows 95, and because our software vendors were pointing us in the direction of NT, we felt it was the way to go," said Frank Trotter, director of capital markets at Mercantile Capital Markets, a division of Mercantile Bank in St. Louis.

Several corporate technology managers, including Trotter, said they briefly looked at Windows 98, which is due in the first quarter of next year, but they don't plan to adopt it. They decided the new operating system will be immature when it first ships and won't provide any compelling new features.

Ron Peeo, a technical director at Universal Underwriters Group, Inc., said his company eventually will look at Windows NT and will likely skip over Windows 98 because of its immaturity.

NT TOO EXPENSIVE

Many users interested in Window NT said they will have a mix of Windows 95 and NT for at least several years because NT is still more expensive to deploy, and some end users don't need such a heavy-duty operating system.

Others are just now migrating to Windows 95. "We're in the process of migrating all of our desktops to Windows 95 from a variety of platforms, and we went with it because we wanted something consistent and reliable," said Wyette Spotts, vice president of systems management at Universal Underwriters in Overland Park, Kan.

Spotts said the decision to choose Windows 95 was based mainly on the fact that driver and application support for Windows NT wasn't advanced enough when the company was drawing up its migration plans earlier this year. □

Senior Editor Laura DiDio also contributed to this article.

Getting there

There has been a lot of confusion and hype surrounding the migration path from Windows 3.x to Windows 95, Windows 98 and Windows NT. But analysts and Microsoft officials said there really is a road map, and they offered the following guidelines for corporate users:

- **Users who currently run Windows 3.x, who need access to legacy applications and who have older hardware can migrate to Windows 95, or Windows 98 when it ships. That will provide backward-compatibility with older applications, support for newer applications and consistent performance.**
- **Users who have new hardware and applications and who also want high performance and improved security can migrate to Windows NT, which affords all of the above.**
- **Companies that can support a mixed environment may want to split their end-user population into two camps: power users who can exploit 32-bit applications via Windows NT, and other workers who need nothing more than Windows 95. — April Jacobs**

Netscape launches free online service

By Carol Sliwa

NETSCAPE COMMUNICATIONS Corp. last week launched a free, members-only online service called Netcenter, aimed at busy professionals who want to locate business resources, including content and software, in one place.

Because Netscape's World Wide Web site is so heavily visited, the company expects to be able to draw customers to the services and products offered by it and its partners, officials said.

Netcenter is targeted at the "top 30%" of Internet users and business professionals, not consumers, they said.

"A better mousetrap will not draw customers," said Netscape CEO James Barksdale. "You've got to find ways to let them know there's a new mousetrap there. And we think because we have this marvelous hub opportunity in the middle of the Internet, we will be one of the significant hubs that will be created."

But not everyone agreed.

Allen Weiner, an analyst at Dataquest in San Jose, Calif., said Netscape doesn't understand what business users want. He said Netcenter is "very unintuitive and awkward."

"The company has had a very clear mission statement from the day it launched, and that is to create open platform software products for the Internet," Weiner said. "This is a tremendous departure from that mission statement and a move that, to me, seems at best haphazard."

But Harry Fenik, an analyst at Zona Research, Inc. in Redwood City, Calif., said Netscape already has been successful in using its Web site as a business opportunity, and Netcenter is merely an expansion of that.

Netcenter might be particularly helpful for executives who want to keep track of the latest news and for small companies and information technology departments that want to "get a leg up on the technology," Fenik said.

Users must register for the service on Netscape's Internet site, entering their name, street address and electronic-mail address. They also will have the option to create a profile that will enable them to personalize the services they want to access. Netscape and VeriSign, Inc. have collaborated on a digital identification that will be used to validate a user's identity and encrypt private information. □

NEW SERVICES

Service	Function
Industry Watch	Helps users keep up with the latest business news and market research
Professional Community	Enables information sharing within discussion groups
SmartUpdate	Eases software updates
Software Store	Allows users to purchase products from Netscape and partners

What are webmaster certifications worth? Two views are provided in IT Careers. Page 94

SSA tries online again – with safeguards

By Sharon Machlis

THE SOCIAL Security Administration plans to resume a modified version of its online benefits service, which was yanked off the World Wide Web in the spring after a flood of criticism over privacy issues.

The new site, to be available later this year, will send only estimated benefits calculations over the Internet — not someone's past earnings data. Earnings information will be sent by postal mail, if requested.

Also, benefits estimates will be put online only if someone asks to have his data provided through the Internet. An activation code will be sent to individuals by electronic mail before their data is posted on the system.

Those modifications are likely to satisfy most opponents of the initial system, who complained it was too easy to gain unauthorized access to someone else's sensitive financial records [CW, May 5].

The Center for Democracy and Technology in Washington hailed the revisions for increasing privacy protections. The civil liberties group called the Social Security Administration's efforts "a blueprint that should guide other government agencies as they strive to use the Internet to provide individuals access to their personal information."

But the safeguards thwart some of the initial purposes of the site: satisfying demand for quick, one-click access to data without using postal mail. □

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FRANKLY SPEAKING

Tips for thrash-busting

FRANK HAYES

Hoo boy, do you ever hate thrash! Mail from readers is still pouring in on the subject of my recent column on those constant software upgrades that pummel productivity ["The high cost of thrash," CW, Aug. 18].

Most of you just wanted to say you love thrash about as much as an impacted wisdom tooth.

But a few wanted more. One reader asked for "a list of helpful tips that can be used to calm frightened users who believe that the world has gone off and left them behind."

Fair enough. Just remember: Not all users are frightened. Some get angry if they don't have the shiniest toys on the block. Some get jealous of other people's status symbols. And some really need those new bells and whistles — and they need them now.

So how can you keep them all calm, if not happy, when you jump off the upgrade merry-go-round?

Tell users what's going on. Say it like it is: You don't plan to upgrade to WordWhiz 9.0 within the next six months. Saying it early, clearly and specifically kills rumors and keeps user expectations under control. Don't say you'll never upgrade — you probably will someday. Don't imply you *will* upgrade after six months. And don't make blanket statements. The more specific you are, the more credible you'll be — and the less backpedaling you'll have to do if you suddenly discover you *need* WordWhiz 9.0 after all.

Most of you love thrash about as much as an impacted wisdom tooth.

Ask users what business functionality they need. Upgrades aren't supposed to be about new bells and whistles; they're about improved business functionality. So ask users what they really need — not WebSlinger 5.1 or object-oriented audio, but specific capabilities they need to do their jobs better. You may discover real user needs you didn't know about and better ways of meeting them. And you may find out that, in some cases, users really do need that upgrade.

Nail down executive support for thrash-busting. Support from the big bosses is always important, but never more so than when managers are trying to climb over your head to acquire that coveted upgrade. Make it clear to your executives that this is about money — a lot more money than they might expect. To do that, you'll also need to . . .

. . . **Make the business case.** Remember, this isn't an anti-upgrade crusade; it's about spiking unneeded, counterproductive thrash. So calculate *all* the costs of an upgrade and have those numbers ready when users come to argue.

Sometimes users just don't realize the costs of upgrading operating systems and hardware, integrating applications and solving compatibility problems. But they'll have to pay that price, so be prepared to give them that cold splash of reality.

Emphasize stability. Some users hate upgrades as much as you do — the disruption, the relearning, the new workarounds. Use that distaste for change to your advantage. After all, if it ain't broke, why fix it?

But don't push a "we hate change" approach too hard, or when you *do* want to upgrade your systems someday, you'll regret it.

Support exceptions. Do they *really* need it? Then they really need it. Don't hesitate to make a limited number of exceptions for users who can make a strong business case for an upgrade. Just make sure they understand the true cost — and make sure it's billed back to them.

And treat those exceptional users as a pilot project; they're perfect for spotting bugs, compatibility issues and retraining requirements. That way you'll know a lot more about the software if you need to roll it out to more users.

Cut deals. Be realistic. Don't try to shove a no-upgrades policy down the throats of users whose cooperation you'll need in the months and years to come. Make your case, then make compromises.

If a questionable upgrade is the price of building a better relationship with users, it may be well worth the cost. □

Hayes is Computerworld*'s staff columnist. His Internet address is frank_hayes@cw.com.*

SHORTS

Intel chip to speed up portables

Intel Corp. today will unveil its Tillamook processor, which is expected to close the performance gap between portable PCs and desktops. At least a half-dozen laptop makers plan to this month roll out new portables using the chip, Intel's new generation of 200- and 233-MHz Pentium processors with MMX technology. A 266-MHz processor is due by year's end.

Mobil in outsourcing pact

Price Waterhouse LLP has signed a letter of intent to provide business process outsourcing to Mobil Corp.'s Exploration & Producing U.S., Inc. unit under a multiyear contract worth several hundred million dollars. Price Waterhouse will provide the Houston-based exploration unit with lease and property management, accounting and financial reporting. Mobil expects the agreement to reduce accounting costs by 20%.

Virus infects Toshiba laptops

If you bought a Toshiba laptop that shipped Aug. 7-23, there is a chance it included the AntiEXE virus, Toshiba America Information Systems said. The virus infects a computer's master boot record and targets an executable file of exactly 200,256 bytes. Fewer than 1 in 100 computers were infected during software testing, Toshiba said. More information is posted at *www.toshiba.com/tais/csd/support/sectorfix/.*

Fix on way for Explorer bug

A security hole in Microsoft Corp.'s Internet Explorer 4.0 can let a hostile World Wide Web page overwrite any file on a client's hard drive, said Tim Macinta, chief technology officer at Massachusetts start-up software and consulting company Endware, which first publicized the bug. Microsoft said the hole will be patched in the final release of Explorer 4.0 and in the final Java Software Developer Kit 2.0. Microsoft said it discovered the problem "during a routine security audit." More details are available at *www.microsoft.com/ie/security/directxbeta.htm.*

Citibank links customers to R/3

Citibank last week said it will deliver next month a new interface to SAP AG's R/3 system for its Citibanking electronic banking system. The interface links a company's R/3 financial system to a Citibank electronic banking account. Citibank said it is developing similar interfaces for PeopleSoft, Inc. and Oracle Corp. applications.

Token Ring standard sought

Major networking vendors in the IEEE 802.5 Token Ring Working Group agreed to pursue a standard for dedicated high-speed Token Ring that scales from 100M bit/sec. to at least 1G bit/sec. The standard will be developed in time for multivendor demonstrations of the technology at Networld/Interop '98 in the spring. Vendors participating in the effort include 3Com Corp., Bay Networks, Inc., Cabletron Systems, Inc., Cisco Systems, Inc., IBM, Xylan Corp. and Madge Networks, Inc.

IBM unwraps hub for ATM

IBM this week will announce a new model of its Nways 8260 hub that provides the capacity users need to build wide-area Asynchronous Transfer Mode (ATM) networks. The Nways 8265 supports 56 155M bit/sec. pipes and 14 622M bit/sec. pipes, said sources who were briefed on the announcement. It has 12.8G bit/sec. of switching capacity and will ship in the fall. Users of 8260s who choose to migrate to the 8265 will be able to use their interface cards in the new system, the sources said.

Jasmine to support interface

Computer Associates International, Inc. said its upcoming Jasmine object database will include optional support for Microsoft's OLE DB data access interface, which supports both relational data and multimedia information such as text, video and images. That will let users store OLE DB-compliant objects in Jasmine on Windows NT or Unix servers. Islandia, N.Y.-based CA didn't disclose pricing for the OLE DB capabilities.

Web site for IT pros folds

Inquiry.com, a San Mateo, Calif.-based Web site designed to give information technology professionals technical information and provide vendors with product leads, last week said it was ceasing operations and laying off its staff. The company, founded in 1995, failed to attract a corporate partner to fund future growth.

Software satisfaction study set

The Institute of Electrical and Electronics Engineers, Inc. is looking for participants and reviewers to establish a software customer satisfaction standard. The customer satisfaction group will report to the Software Engineering Standards Committee of the IEEE. Work is expected to begin immediately, and an action plan is scheduled to be issued by next fall. For more information, contact Darrell Corbin at darrell.s.corbin@boeing.com or (425) 865-5939.

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As clock ticks, many still avoid year 2000 work

By Robert L. Scheier
NEW YORK

WITH JUST nine quarters to go, many businesses are still dragging their feet in fixing year 2000 software problems, said analysts and observers at a year 2000 conference here last week.

A combination of denial and confusion is delaying the inevitable work, only making it more expensive and harder to do, experts said.

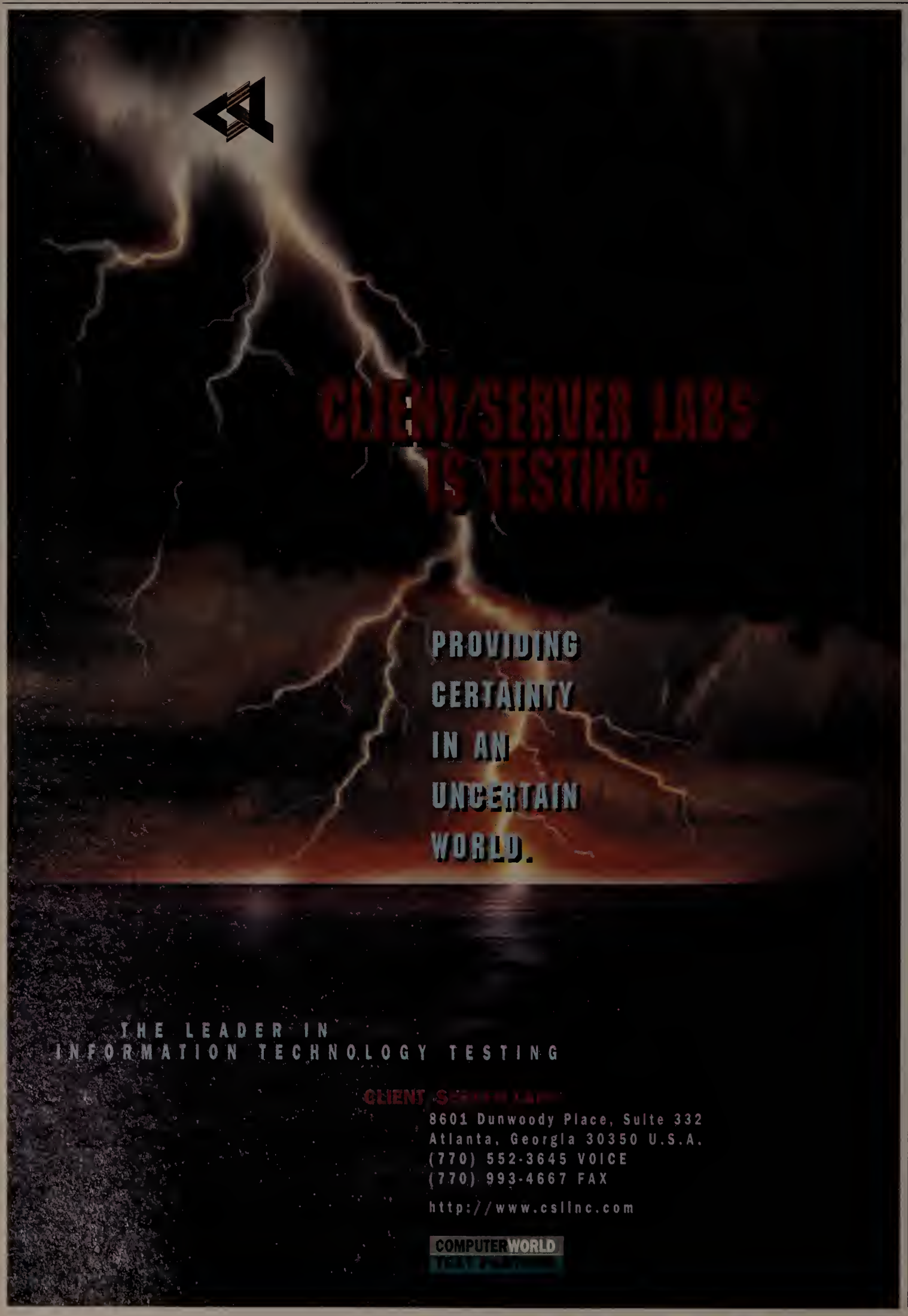
"I'm concerned with the general progress of institutions worldwide," said David Iacino, senior manager of Bank-Boston Corp.'s year 2000 conversion project. Unless more information systems organizations dramatically step up their efforts in the next few months, he said, "even those who are prepared will suffer" when year 2000 glitches shut down their customers or suppliers.

Sixty percent of companies are still assessing their year 2000 problems, with only 25% actually fixing applications and fewer than 10% testing the fixes, said Allen Deary, chief financial officer at Peritus Software Services, Inc., a Billerica, Mass., vendor.

Some spending for year 2000 tools and services already is taking place, but "the big dollars" won't be spent until next year, wrote Cruttenden Roth, Inc. analyst Neil Cooper in a research report.

Investment analysts and vendors at the conference, sponsored by Cruttenden Roth, an investment bank in Irvine, Calif., echoed the theme that corporations are doing too little, too late.

Many CEOs are "still in denial," said John Adams, national sales executive at BDM International, Inc., a McLean, Va.-based systems integrator. "They keep looking for that cheap way to fix the problem," rather than tackle something such as BankBoston's four-year, $50 million conversion project, he said.



REAL YEAR 2000 BUGS

If BankBoston hadn't found them, year 2000 bugs would have made it impossible to:

- Calculate interest on some certificates of deposit
- Track the collateral on some borrowers' loans
- Electronically transmit some funds

Cooper predicted that many companies will finish assessing their year 2000 problem this year, then realize how big it is and scramble for money and people to make the fix in "panic stage" buying.

Even savvy companies can underestimate the scope of the work. When BankBoston began its year 2000 project in 1995, it estimated it had 30 million lines of code to fix. After two years of work, that estimate has doubled to 62 million lines, Iacino said. (See chart above.)

Iacino said large banks and corporations will solve their most critical year 2000 problems in time, but marginally profitable, midsize companies with small IS staffs are likely to have some disasters. He said several small banks eventually will fail because of year 2000 problems.

Companies also underestimate the complexity of testing for year 2000 bugs in cases where companies trade information, such as when a customer uses a BankBoston automated teller machine (ATM) card at another bank's ATM.

He said intercompany testing is a "massive problem" that could cost companies as much as their internal year 2000 projects. □

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TRBA

E-commerce servers to grab spotlight at ICE show

▸ *Users must be willing to pay big bucks for feature-packed products*

By Mitch Wagner

VENDORS AT next week's Internet Commerce Expo (ICE) in Los Angeles plan to introduce catalog and electronic-sales software designed to offer industrial-strength robustness and features for users willing to pay the hefty price tags.

For example, Open Market, Inc. will unveil LiveCommerce server, which starts at $45,000. To electronics supplier C&K Components, Inc., the expense is worth it.

"It is not a cheap product. But for a lot of people, there are advantages for it. This is not like we're L. L. Bean selling a sweater on the Internet in a few sizes and a few colors," said Scott Hunt, MIS director at C&K Components.

The Watertown, Mass., company is using LiveCommerce to publish its catalog of 30,000 components on the World Wide Web, beginning with a pilot project this week. Hunt said LiveCommerce will allow his company's customers to put electronic parts together online to configure the products they want to buy. It supports heavy transaction loads and lets C&K Components give Web site visitors customized views of products and prices based on business contracts.

Open Market in Cambridge, Mass., expects to make LiveCommerce generally available in October.

THE HIGH END

Also at ICE, Connect, Inc. in Mountain View, Calif., plans to introduce a new version of its OrderStream commerce server, which starts at $100,000.

The high-end products such as OrderStream and LiveCommerce are considerably more expensive than other catalog offerings from companies such as Microsoft Corp. and Seattle-based Icat Corp. For example, The Vision Factory, Inc. in Scotts Valley, Calif., plans to introduce a new version of its Cat@log software for $4,995.

What users get for the higher-priced products is more powerful software, said Connect user Joe Mislinski, vice president of technology marketing at the Moore Document Solutions unit of Moore Corp. in Toronto.

OrderStream, for example, has a Java-based client application for designing catalogs aimed at nontechnical business managers. The software also has interfaces designed to ease connectivity to back-end electronic data interchange systems and SAP AG's R/3 enterprise resource planning package.

The Connect and Open Market offerings join competitors that already have products on the market, including Actra Business Systems LLC in Mountain View, Calif., a joint venture of Netscape Communications Corp. and General Electric Information Systems, Inc.; BroadVision, Inc., also based in Mountain View; and Elcom Systems in Westwood, Mass. □

Novell opens upgrade path

CONTINUED FROM COVER 1

users to IntranetWare 4.x.," he said. "At a list price of $795 per server, it would be hard for me to cost-justify spending $318,000 to buy [Simware's RexxWare Migration Tool] for 400 NetWare servers."

Persuading so-far reluctant users such as Lamboy to upgrade is critical to Provo, Utah-based Novell for several reasons: Only 25% to 30% of the 60 million NetWare users have moved from Version 3.x, Novell posted a loss of $121 million in its most recent quarter, and the company needs to stem the tide of defections to Windows NT.

Managers at nine Fortune 1,000 shops interviewed by *Computerworld* said Novell's decision to license the RexxWare Migration Tool (RMT) could have an effect on their purchasing decisions.

PHOTOS BY STEVE BORNS

The Guggenheim's Leonard Steinbach says, "Novell is starting to get it right. These deals indicate a clear sense of direction for the long term"

Phil Easter, technology strategist at Greyhound Lines, Inc. in Dallas, said the free tool will shave nearly $25,000 off the cost of migrating the remaining 40% of his NetWare 3.x servers to IntranetWare. "Novell is telling the industry they're committed and motivated to keep us as customers," Easter said.

"Including RMT in IntranetWare increases the product's value. They should do more of these deals," said Josh Turiel, MIS manager at Ad Life Marketing Corp. in Norwood, Mass.

By giving RMT away, Novell is potentially saving its NetWare 3.x users untold dollars in the cost of the software alone.

Also, RMT automates about 80% of routine migration tasks such as moving passwords, files and directory database information. RMT can be used to build test configurations offline, eliminating the risk of disrupting network operations and losing data.

Chase Manhattan said it expects to cut the time it takes to migrate users by one-third — from 18 months to about a year.

"That's a very big deal. We have 25 network administrators who each earn an average of $40 per hour. And RMT lets me take a cookie-cutter approach to the upgrade and eliminates a lot of human error," Lamboy said.

Mike Jayjock, manager of risk assessment at Rohm and Haas Co., a Plexiglas manufacturer in Springhouse, Pa., said the free tool from Ottawa-based Simware could save his company $250,000 in upgrading 320 NetWare servers.

"It's definitely a stone on the scale weighing in Novell's favor," Jayjock said. "It also tells me that although Novell still has a lot of restructuring to do, they're on the right track to survive and thrive again."

Phoenix Home Life Mutual Insurance's Michael Kearney says, "Fence-sitting NetWare 3.x customers" have hurt the company

Leonard Steinbach, director of Information Technology at the Solomon R. Guggenheim Museum in New York, acknowledged that Novell's future was "a vital consideration" when the museum did its network upgrade earlier this year.

"Novell is going in the right direction, and deals like this one with Simware can only help the comeback effort. It indicates that Novell is trying to set a long-term standard direction for both its business and technology model," Steinbach said.

Michael Kearney, vice president of information systems at Phoenix Home Life Mutual Insurance Co. in Enfield, Conn., said "fence-sitting NetWare 3.x customers" have hurt the company.

"Windows NT is far from invincible," Kearney said. "I use it as an application server but won't risk my mission-critical applications by running them on Windows NT. The pact with Simware could very well be the first step on the long road back for Novell." □

Microsoft targets BackOffice at small-business customers

By Laura DiDio

TO FURTHER broaden the appeal of Windows NT, Microsoft Corp. last week began a widespread beta test of its forthcoming BackOffice Small Business Server.

Due out in the next three to four months, the package is aimed at small businesses that have 25 PCs or fewer and at large corporations that have small, remote offices, said Betsy Johnson, a group product manager at Microsoft.

The BackOffice Small Business Server is a slimmed-down version of BackOffice Server suite, an integrated package of applications that contains features such as file, print, application and fax services; SQL Server 6.5; Internet Information Server (IIS) 3.0; and Exchange Server 5.0, with Microsoft Outlook and modem pooling capabilities.

The version for small business lacks the Systems Management Server component. It was fine-tuned for ease of use at offices that don't have a full-time network administrator, Johnson said.

Four early beta users contacted by *Computerworld* said they have extensively used the bundled IIS 3.0 and the integrated fax services capabilities.

"The Small Business Server running on top of Windows NT 4.0 is very easy to use, and we've had no trouble implementing security and password protection," said Martin Criminale, retail manager at Ti Cycle Co., a bicycle manufacturer in Seattle.

"The biggest gain for our business is the increased reliability we get with Windows NT 4.0 [when] used in conjunction with the Small Business Server suite. We're also much more efficient and can answer customer queries almost instantly because information is literally just a keystroke away," he said.

The only downside Criminale has seen has been performance degradation when workers use the Windows NT 4.0 machine as both a server and a workstation. Even with 64M bytes of RAM, throughput slows noticeably when the machine is deployed in a dual fashion.

"The Small Business Server running on top of Windows NT 4.0 is very easy to use."
– Martin Criminale, Ti Cycle

Sonia Huntzinger, an accountant at Foster & Co. in Seattle, has used the Small Business Server beta over the past three months.

The combination of Exchange Server 5.0 and Outlook has let the company create discussion groups and list servers, while the Microsoft Proxy Server has provided fast, secure Internet access from users' desktops.

"Network operations are a lot faster, and we're far more productive," Huntzinger said.

Pricing for the BackOffice Small Business Server will be announced when it ships. □

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SNA FRAME RELAY SOLUTIONS

Is this a great time, or what?

MCI

Telco slam scam hits businesses

To avoid being slammed, receptionists need to just say no

By Kim S. Nash

AGGRESSIVE AND, IN some cases, underhanded telephone companies are adding corporate slamming to their already lucrative residential schemes.

The number of business complaints to the Federal Communications Commission regarding involuntary switching to a new long-distance provider has more than doubled each year since 1994.

Small to midsize companies, which often don't have long-term contracts with a particular carrier, are an easy target. But even some big firms have been hit at remote offices or branch locations, where the telecommunications manager at headquarters might not notice.

The American Bureau of Shipping (ABS), a shipping industry regulator in Houston, has been stung a few times that way, according to a company manager.

Several of the ABS's 230 offices worldwide were picked off by unscrupulous telecommunications carriers when local office workers mistakenly agreed to switch phone services, the manager said.

"It's fraud — that simple," said Shelly Abramson, president of Fabricare Draperies, Inc., a company in Rockville, Md., that has been hit four times since April 1996.

"This is not huge and horrible like on the consumer side, but it hurts," said Ron West, president of the Communications Managers Association in Morristown, N.J.

Even individual phone lines at major companies have been slammed, and that can go unnoticed by the victim for months and rack up hundreds or thousands of dollars for the rogue telecommunications firm.

Bally's Park Place, Inc., for example, saw several individual lines switched, said Doris Brewer, the telecommunications manager at the casino in Atlantic City, N.J.

In fact, some long-distance services specifically target business users, said a spokeswoman for the Public Utility Commission in Austin, Texas.

Slammers often rely on unwitting receptionists and corporate bureaucracy to pull off the scam. A marketer calls a business line and asks questions designed to elicit a "yes" response, which can be purposefully misconstrued as an approval to fiddle with the phone service.

Some "authorizations" apparently are forged outright. MedSource, Inc. in West Nyack, N.Y., was hit that way in 1994.

From what a MedSource executive can piece together, the carrier appeared to snatch MedSource's phone number, the name of an office assistant at MedSource and her signature from an information card filled out at a trade show.

The slamming company crafted a fake authorization by reproducing the assistant's signature on a card otherwise filled in by a salesman for the carrier.

"Slamming is horrendous enough," the MedSource executive said. "But I object to this fraud violently."

The FCC doesn't have any particular plan to deal with corporate slamming other than to advise companies to adapt its consumer antislam advice. Information is available at its World Wide Web site (*www.fcc.gov/Bureaus/Common_Carrier/Reports/score_card_95.html*). □

SLAM STOPPERS

How to prevent unauthorized telecommunications switches

- Employees, especially receptionists and administrative assistants, should refer callers from phone companies to the manager of telecommunications
- Never say "yes" to a telecommunications marketer, no matter how benign the question may seem
- Have your local phone carrier put a freeze on your account so no changes can be made without written authorization from a manager
- Report suspicious calls to the local Better Business Bureau or telecommunications agency

Number of slamming complaints from businesses processed by the FCC:

Source: Federal Communications Commission, Washington

In legal limbo

Companies victimized by a slammer don't have to pay the entire bill — just the portion that they would have been charged by their preferred carrier.

But an FCC proposal could change that, relieving targets of all debt to slammers.

Not being able to fight back against slammers is what frustrates many corporate prey. For example, Fabricare's Shelly Abramson decided to complain formally to the FCC about her problems with AT&T Corp., MCI Communications, Inc. and a bill consolidator called U.S. Billing, Inc. in San Antonio. She claims all three companies slammed Fabricare.

Ten days and $12 in postage later, Abramson sent copies of bills and letters to the FCC, which simply confirmed that she was indeed slammed.

That was in July. Since then, the agency has done nothing further to help, Abramson said. And she said she can't come up with any more tactics for fighting the telephone companies.

Hiring a lawyer would cost more than the $631.69 the carriers said she still owes. Small claims court is out because companies can't sue one another there.

"I feel like a carcass in the middle of the desert with vultures trying to decide who gets what part of me," Abramson said. "Does MCI get my leg and AT&T get my right arm?" — Kim S. Nash

INTERNET SERVICE

Fastest Web server will boost high-volume sites

By Matt Hamblen

SILICON GRAPHICS, INC. and Netscape Communications Corp. last week announced they will jointly build the world's fastest Web server over the next two years.

The so-called Everest project could be good news for big businesses with high-volume World Wide Web sites that handle millions of consumer visits per day. Silicon Graphics CEO Edward R. McCracken predicted that users will enjoy response times that are 10 times faster than today's times.

The server, which will have 64 or 128 microprocessors, would help the largest Internet service providers and Web supersites provide near real-time delivery of information and multimedia content for site users, company officials said.

EASY MANAGEMENT

Furthermore, large companies could replace 100 or more server boxes with one or two of the new machines, making their networks much simpler to manage.

"It's quite important to AT&T," said Mike Rich, director of product management for Web site services at AT&T Corp. in Basking Ridge, N.J.

AT&T's Easy World Wide Web service, with 6,000 business customers, needs a faster, multithreading server to provide more efficient and cost-effective service to those customers, Rich said.

"I don't know of any site that needs that much horsepower right now, but clients of ours may need that horsepower in the future," said Adam Joffe, president of WorldSite Networks, Inc., a Beverly Hills, Calif.-based Internet service provider. WorldSite hosts hundreds of Web sites for the entertainment industry.

Joffe said having a large number of Web servers has become "a management problem," so the notion of consolidating them is attractive.

"This new approach is arguably preferable to setting up server farms because there's a single point of control," said Chris Willard, an analyst at International Data Corp. (IDC) in Mountain View, Calif.

Marc Andreessen, executive vice president of Netscape's products division, said the collaboration with Silicon Graphics grew out of Netscape's need to

Silicon Graphics will invest $250 million in the Everest project over two years.

replace about 150 server boxes at its own Web site with one or two. It was only logical to "productize" that research effort, he said.

The first Web server product, still unnamed, will be available in about six months. Models with more processors will come out over the next two years, officials said.

The vendors, both based in Mountain View, Calif., didn't announce pricing.

Jean Bozman, an analyst at IDC, said the largest server could cost $1 million.

David Cooperstein, an analyst at Forrester Research, Inc. in Cambridge, Mass., said he isn't sure the market segment of big Internet service providers and Web supersites will be large enough.

But he added, "There is a $327 billion market for businesses on the Web in five years, and they will want a Web that is fast and always works and is ready for customers to do what they want." □

High-end servers in use or planned for the Web

Vendor	Product
SGI/Netscape	Everest collaboration
IBM	SP
Sun Microsystems	Ultra Enterprise 10000
Hewlett-Packard	V class

Source: International Data Corp., Framingham, Mass.

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Vendors ready to harvest database crop

▸ *CA, IBM and Sybase gear up to go after Oracle*

By Craig Stedman

A BUMPER CROP of databases is due to move out of beta testing and into production in the next 45 days.

Computer Associates International, Inc., IBM and Sybase, Inc. all plan to ship long-promised products in a quest to grab back some of the spotlight from the Oracle8 software that market bigfoot Oracle Corp. released in June.

IBM and Sybase this month are scheduled to come through with upgrades to their respective relational databases that should let users run a wider mix of applications on a single server without causing performance nightmares.

Islandia, N.Y.-based CA will follow by the middle of next month with its Jasmine object database, a new product for multimedia and Internet applications that was originally due late last year.

The collective goal: to keep Oracle from sashaying away with more and more users.

Key challenges facing Oracle's database rivals

Vendor	Challenge
Computer Associates	Selling to users outside its acquired customer base
IBM	Proving its database worthiness to users who don't have IBM hardware
Informix	Ending losses and questions about its revenue-reporting practices
Microsoft	Selling against Oracle and other vendors at the enterprise level
Sybase	Regaining technical credibility and jump-starting sales again

Source: International Data Corp., Framingham, Mass.

SYBASE STABILIZES

For example, Sybase has righted itself financially after big losses last year, said Rob Swift, manager of database administration in the Healthcare Services division at pharmaceutical giant SmithKline Beecham Corp. in Philadelphia.

But Sybase still needs to regrow its database revenue and market share, he said.

On that front, "they obviously have an uphill battle," Swift said. "Oracle has a large lead, to say the least."

Swift's division at SmithKline Beecham uses Sybase's mainstay SQL Server database and its Sybase IQ decision-support software. He said the unit within a couple of months expects to upgrade to the new release of SQL Server, which is being renamed Adaptive Server Enterprise 11.5.

Oracle controls about 40% of the database business and likely will increase that further thanks to Sybase's lingering image problems and the financial debacle that befell No. 2 vendor Informix Software, Inc. this year, according to International Data Corp. (IDC) in Framingham, Mass.

Oracle is "using Oracle8 as a hammer to try to just smash their way through the marketplace," said Carl Olofson, an IDC analyst.

"The thing that's so important for these other vendors is to remind everyone that they're still in the game," Olofson said.

Sybase and IBM will formally announce their new databases next week at the IT Forum '97 conference in New York.

Adaptive Server Enterprise, which Emeryville, Calif.-based Sybase first detailed in April, adds features such as parallel querying and loading and support for creating multiple virtual servers to keep different applications from fighting over system resources.

IBM's DB2 Universal Database, which has been in beta testing since late last year, merges the multiprocessor and parallel versions of DB2 into a single code base and enables users to get at databases from World Wide Web browsers.

The parallel processing support should help DB2 Universal Database handle large applications that mix transaction processing and querying, said beta-tester David Yeger, a vice president in the distributed architecture group at Merrill Lynch & Co. in Princeton, N.J.□

IS turns to marketing

CONTINUED FROM COVER 1

MARKETING TECHNOLOGY

How marketing firms are helping IS departments:

- **Customer newsletters:** Articles focus on how IS supports corporate strategies and new technology implementations.
- **Develop publicity materials:** Includes posters, "how to" videos, progress reports and operating instructions.
- **Awareness sessions:** Technology briefings for users and meetings with business-unit leaders for IT staff.
- **Surveys:** To measure customer satisfaction and poll user requirements.

that does not meet commitments, keep deadlines or even understand where the corporation is headed in the market," said Paul Ouellette, CEO of Ouellette & Associates Consulting, Inc. in Bedford, N.H.

Such efforts could become vital for IS departments, especially in corporations where user departments are free to shop around for their technology requirements, said Naomi Karten, president of Karten Associates, a marketing consultancy in Randolph, Mass.

"The fact that IS departments have to compete with others is driving a lot of this," Karten said.

"You really are in a situation today where you have to sell your services. Users can just as easily go down the street to buy their services as they can from you internally," agreed David Krauthamer, MIS manager at Parker Hannifin Corp. in Rohnert Park, Calif.

U.S. firms last year outsourced an estimated $17.5 billion in IS contracts to systems integrators and service providers, according to International Data Corp. in Framingham, Mass.

Marketing services provided by outside firms aren't always cheap. Full-fledged communications projects for large corporations, involving long-term marketing strategies, customer satisfaction surveys and market research, could easily run up to $100,000, according to observers. Even relatively small projects, such as marketing seminars for information technology staff, could cost more than $15,000. In most cases, the cost usually is taken out of internal IS budgets.

MARKETING PLAN

The strategy typically involves marketing IT services internally, evangelizing new technologies, explaining corporate objectives to IS staff, preparing users for product changes and setting up a communications channel to measure satisfaction with IS.

For example, last year when Nissan Motor Corp. in Gardenia, Calif., was in the midst of a wrenching overhaul of its enterprise messaging system — and rolling out Windows 95 to 3,000 desktops nationwide at the same time — the company retained the services of Jack B. Loewy Marketing Consultants, Inc. in Louisville, Ky.

Working with Nissan's Information Technology Management group, Loewy helped the company devise a communications strategy that included creating logos for the project, printing brochures with schedules and details of the move, and producing promotional video clips that were broadcast via the company's internal television network.

Often, the payback from such efforts is hard to measure in dollar savings, conceded David R. Espinoza, client relations manager at Nissan.

"But you know it is a success when you start getting less calls from users asking you for support or telling you that they didn't know [that a planned technology change] was going to happen," Espinoza said.

Also working with Loewy is Blue Cross/Blue Shield of Illinois, which is in the midst of a massive merger with Blue Cross of Texas. It is trying to develop a common communications strategy for the combined operation. The staff from Blue Cross/Blue Shield's Chicago-based Information Technology Group is working with Loewy and IS staffers from the Texas outfit to educate users on the technology implications of the merger.

The primary vehicles for communicating information to its staff and other units have been two newsletters: "ITG News" for its IT staff, and "Milestones" for wider consumption. The Information Technology Group also has conducted customer satisfaction surveys and even coordinated "Lunch with Joe" sessions in which Chief Information Officer Joseph Dolan sits with IS staff to give an overall picture of the company's goals and the role of IS in defining it.

"There is definitely more to this whole thing than just the soft feeling that comes from having satisfied customers" said Pat Griffin, a customer service and technology officer at the Information Technology Group at Blue Cross/Blue Shield.

"But we are still measuring what exactly the payback of all this is to the IT organization," Griffin said.□

An old concept

The concept of internally communicating the role of IT departments to other units within an organization isn't new.

For years, companies have been resorting to events such as technology fairs and general awareness sessions to spread information about IS activities.

What is new is the attempt by a growing number of corporations to cast their efforts into a more formal structure with help from outside agencies when necessary.

"Companies that have these kind of fairs usually do little more than show the whiz-bang technology of the day when what is needed is a continuous marketing effort," said Paul Ouellette, CEO of Ouellette & Associates.

— Jaikumar Vijayan

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3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)

Operating Systems

(a) Solaris	(e) Mac OS
(b) Netware	(f) Windows NT
(c) OS/2	(g) Windows
(d) Unix	(h) NeXTstep

App. Development Products ❑ Yes ❑ No

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(d) Unix	(h) NeXTstep

App. Development Products ❑ Yes ❑ No

Networking Products ❑ Yes ❑ No

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IBM's high-end RS/6000 gets power surge

By Tim Ouellette

IBM's RS/6000 line is riding the road back to recovery on the shoulders of its highest-end server.

Key to the resurgence will be upcoming power boosts and clustering additions to the RS/6000 SP, IBM's parallel processing Unix machine better known for its number-crunching chess exploits as Deep Blue.

And with growing interest from business users, the SP is helping to boost the fortunes of the struggling RS/6000 division as a whole.

IBM this month will begin to offer the latest PowerPC 604E processors on the SP, promising users more than 50% in performance gains over the previous PowerPC 604 chip — with no price increase.

The processor upgrade was expected because IBM has phased the chips into the rest of the RS/6000 server and workstation line during the past year in a bid to bring performance up to the level of other Unix competitors. [CW, Nov. 25, 1996].

But IBM spiced the announcement by revealing new clustering software for the SP that will support up to 16 nodes, with plans to double that to 32 by next year (see chart below).

"Customers like the idea of computing without limits," said Howard Richmond, an analyst at Gartner Group, Inc. in Stamford, Conn. "The SP's main strength is its scalability."

IBM will boost the power of the RS/6000 SP with the following:

- High Availability Cluster Multiprocessing for AIX 4.2.1 software
- General Parallel File System that recovers from failures
- Parallel System Support Programs software for systems management
- Disk and tape system recovery and management tools

In fact, IBM officials said they plan to trickle down some of the clustering capability, code-named Phoenix, into the rest of the RS/6000 server line to cash in on interest in the SP.

The SP can train dozens of processor nodes on a computing problem simultaneously.

Although the SP can support up to 512 of those nodes, until now users could pool only up to eight of those nodes into a high-availability cluster.

The latest boost is just what many of the 2,000 business and scientific sites that run the SP expect from the system.

"We bought the SP for the purpose of growing," said Mike Quinn, Unix team manager at Intermountain Health Care in Salt Lake City. "We have looked at other SMP servers, but we felt that we had more flexibility to expand with the SP."

The health system houses a growing patient database on its SP and continues to add processors in pairs as needed, Quinn said. Other popular business uses for the SP include server consolidation, data warehousing and transaction processing. The growth in SP sales — which jumped 30% last quarter — comes after IBM's Chief Financial Officer Lawrence Ricciardi recently called the RS/6000 division's performance in the rest of its servers and workstations a disappointment.

"It looks like the SP is one of the stronger parts of the RS/6000 line," said Chris Willard, an analyst at International Data Corp. (IDC) in Framingham, Mass.

In fact, IDC estimates that the SP, which made up 19% of the RS/6000 division's total business last year, could account for 32% this year. □

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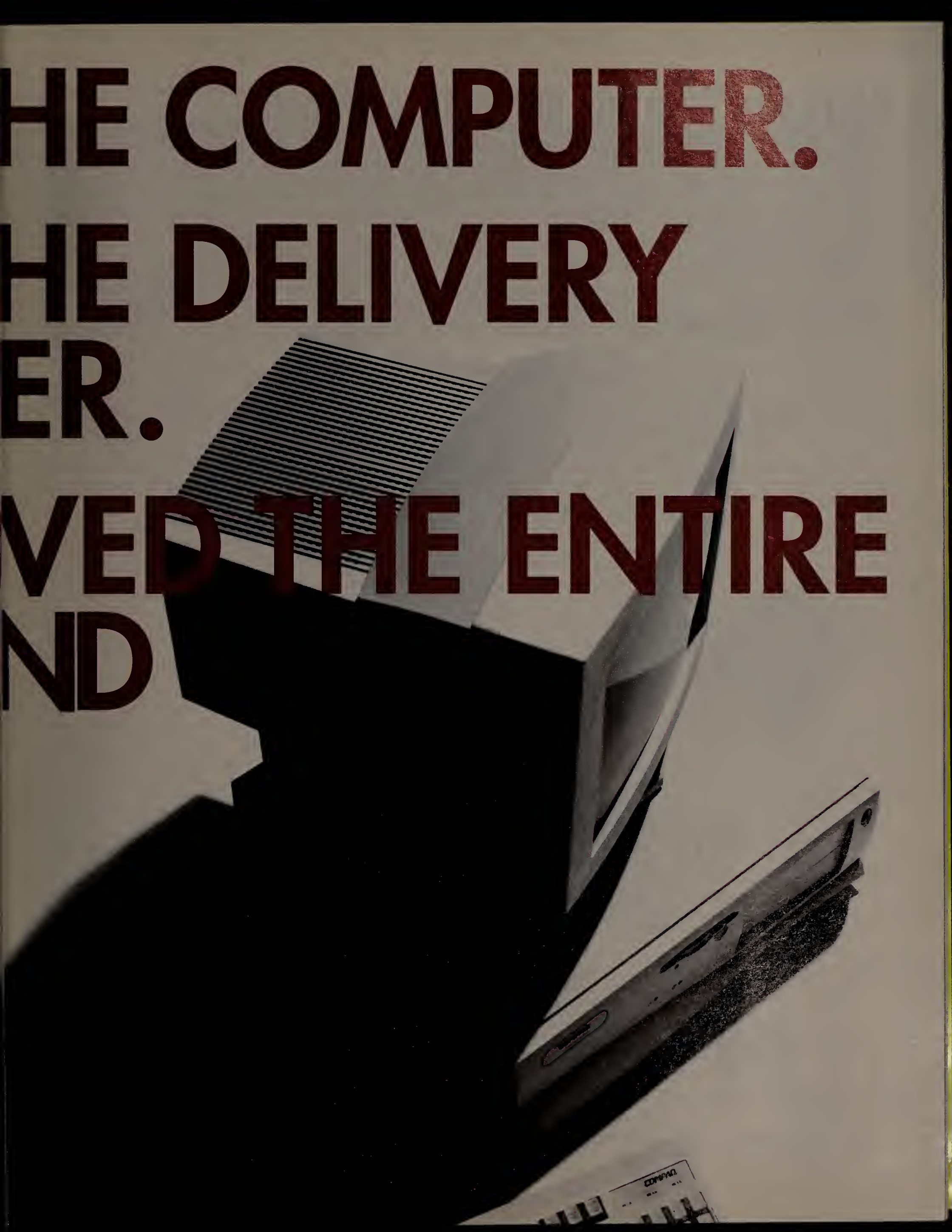


Users pour Java into intranets, extranets

By Carol Sliwa

YES VIRGINIA, there is a company using Java in its intranet and extranet.

The creator of the hip and hyped programming language, Sun Microsystems, Inc., recently trotted out several enterprise customers who are banking on Java to build key applications.

One institution that uses Java extensively is the Ontario College Application Service. The service helps 25 public Canadian colleges — with more than 250,000 full-time and 500,000 part-time students — process applications through an extranet. It also helps officials, faculty, staff and students communicate and share information over intranets and extranets.

For instance, one Java application lets college members conduct asynchronous meetings over an extranet. An agenda is posted, and participants can mail in their comments and vote on matters. Another extranet application lets multiple colleges log admission test results.

Using another language, code would have to be changed to correspond to the various operating systems of the colleges.

"With Java, you just write it the same way, once. You don't care what the target is," said Guy Morazain, executive director at the Ontario College Application Service.

Currently, dynamic request handling is exactly what Java does best in a corporate setting, said John Rymer, an analyst at Giga Information Group in Cambridge, Mass. "You use Java as a way to get to very diverse back-end information," he said. "Java is good for assembling data and functionality on the fly."

NOT PRIME TIME

What Java isn't good for now is big operational applications, Rymer said. "You wouldn't use Java [now] to build an accounting system," he said. "It's too slow, and it's not clear there's any benefit. Java code wouldn't be able to handle large transaction loads."

But Rymer said he thinks the situation will improve over time. "I'm not one who thinks Java's going to go away," he said. "I just think it's been overhyped."

At CSX Corp. subsidiary CSX Transportation, Inc., executives use a Java boardroom application to review company performance, and sales and marketing employees monitor and manage accounts and do pricing analyses. The company also is testing financial and payroll applications.

Because the company uses network computers in certain sectors, other languages aren't an option for writing the sort of lightweight applications needed for those limited-memory machines, according to John Andrews, president of CSX Technology, Inc., CSX's technology arm, in Jacksonville, Fla.

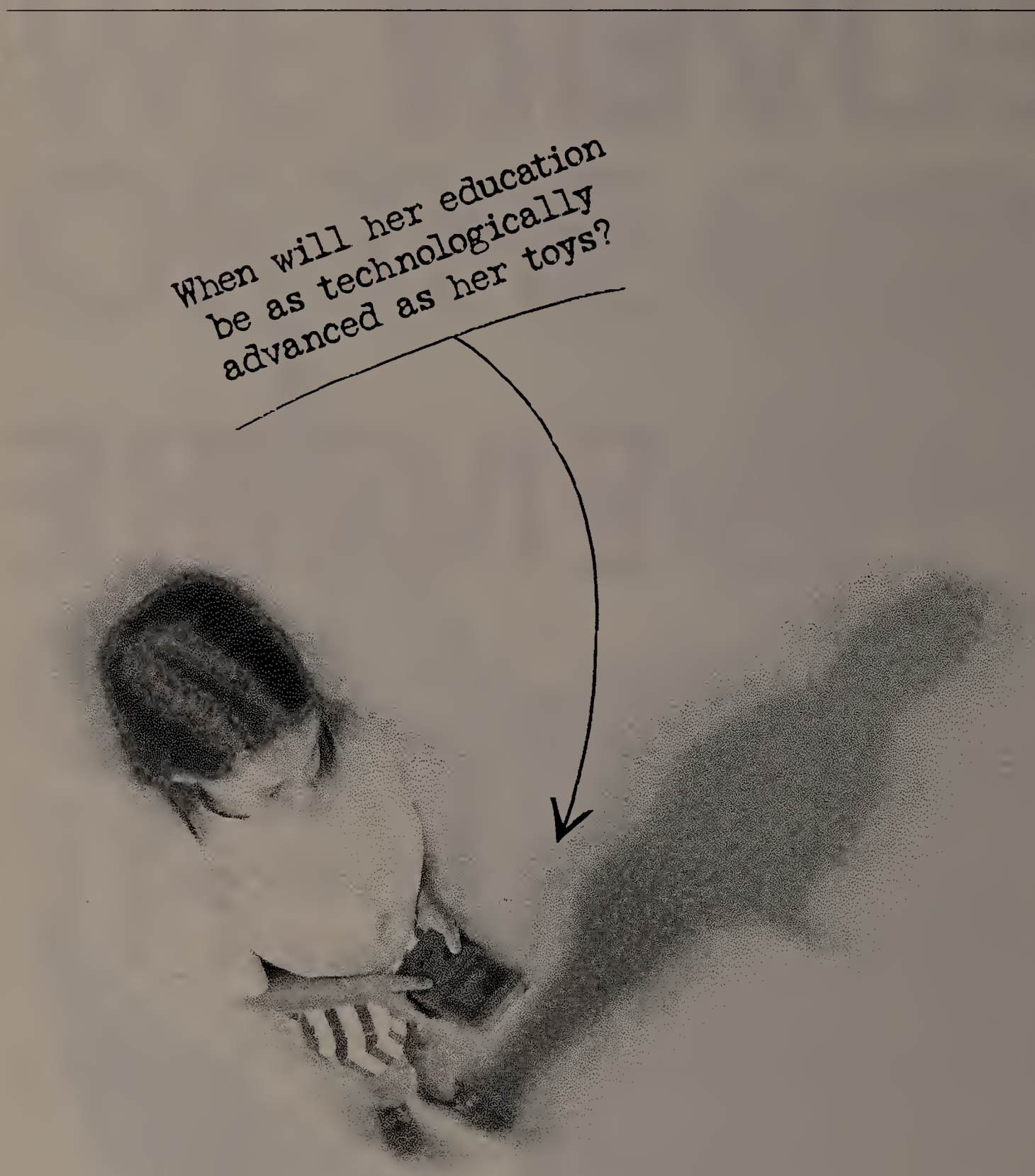
Developer productivity is another big advantage Java brings, Andrews said.

The National Center for Toxicological Research (NCTR), an arm of the Food and Drug Administration, uses Java for simple tasks, such as looking up a person's supervisor and finding electronic-mail addresses, and for more research-specific applications that let scientists collect and navigate through data.

"We have to support a very wide range of platforms, and Java's one of the few options that we have available to us," said Martin Jackson, a senior systems engineer at ROW Sciences, Inc., a contractor that does work for the NCTR.

But not every company is ready for Java. A major financial institution in the Boston area is considering Java to build applets that have intelligence to let clients view information about their securities. Information needs to be accessed and organized from back-end databases.

Performance issues aren't the main worry. Instead, the company is more concerned about printing out reports, and those services currently aren't available in Java applications. □



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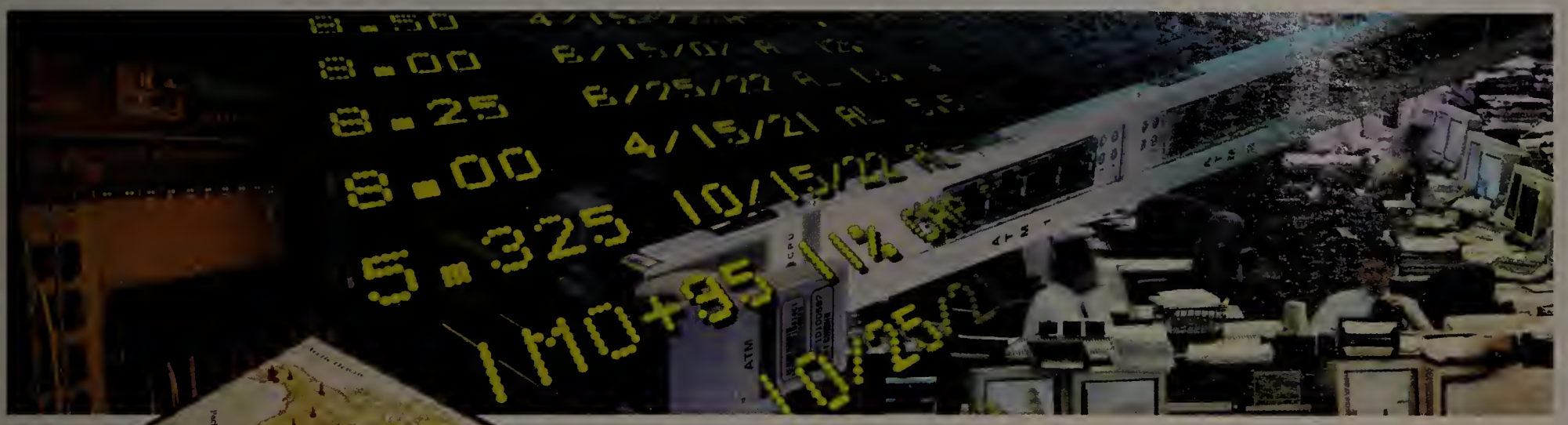

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Out-of-the-box firewalls on horizon

By Sharon Machlis

THE FIREWALL of the future will consist of bundled hardware and software, default generic security policies and deployment as easy as "installation wizards" used in Windows 95.

That's according to Mike Zbouray, an analyst at Gartner Group, Inc. in Stamford, Conn.. Zbouray predicted that by 2002, "firewall appliances" will cost around $1,000 and be so simple to use they could be sold through catalogs.

He said that could solve a major problem behind many successful hacker attacks: misconfigured firewalls.

There already have been tentative moves toward creation of firewall appliances from companies such as Seattle Software Labs — recently renamed WatchGuard Technologies, Inc. — and Technologic, Inc. in Atlanta.

Their products are aimed at small and midsize companies that don't have the technical resources and expertise to install and manage high-end firewall software, which can cost $20,000 per site.

Pediatric Physician Alliance, Inc. in Norcross, Ga., recently purchased the Interceptor firewall from Technologic to protect sensitive medical data from intruders. The company, which provides nonmedical management services to physician practices, plans to install a virtual private network to exchange encrypted medical records with customers.

QUICK AND EASY

"I wanted something that would be very easy to set up," said Mike Gentry, director of information systems. The hardware/software package includes default security policies to simplify setup. Modifying the package for specific company needs "looks pretty easy," he said.

Gentry said the Interceptor software was up and running in half a day, substantially quicker than his experience with a high-end firewall. The lone glitch involved a larger-than-usual hard drive that the software didn't recognize, but that was solved with a vendor patch.

Gentry said the new generation of firewalls is user friendly enough and there is no need for the installation wizards that Zbouray expects to see in the future.

Gentry said a Windows NT administrator shouldn't need such wizards. "They need to be able to go in and learn the skills to administer the firewall," he said.

For now, the early "firewall appliances" have a relatively small share of the overall market — perhaps 800 units deployed to date vs. thousands annually sold by conventional firewall vendors.

During a teleconference last week, Zbouray also predicted the firewall market soon will include software specifically designed for intranet applications.

Those products won't be designed to provide the highest possible level of security, such as the Federal Reserve System might need, but rather a reasonable level of affordable privacy protection for data within an organization.

Gentry said firewall technology will be embedded within switch technology, but he cautioned against doing the same within routers, for security reasons. "Using routers is one of the worst ways to connect networks together," he said. □

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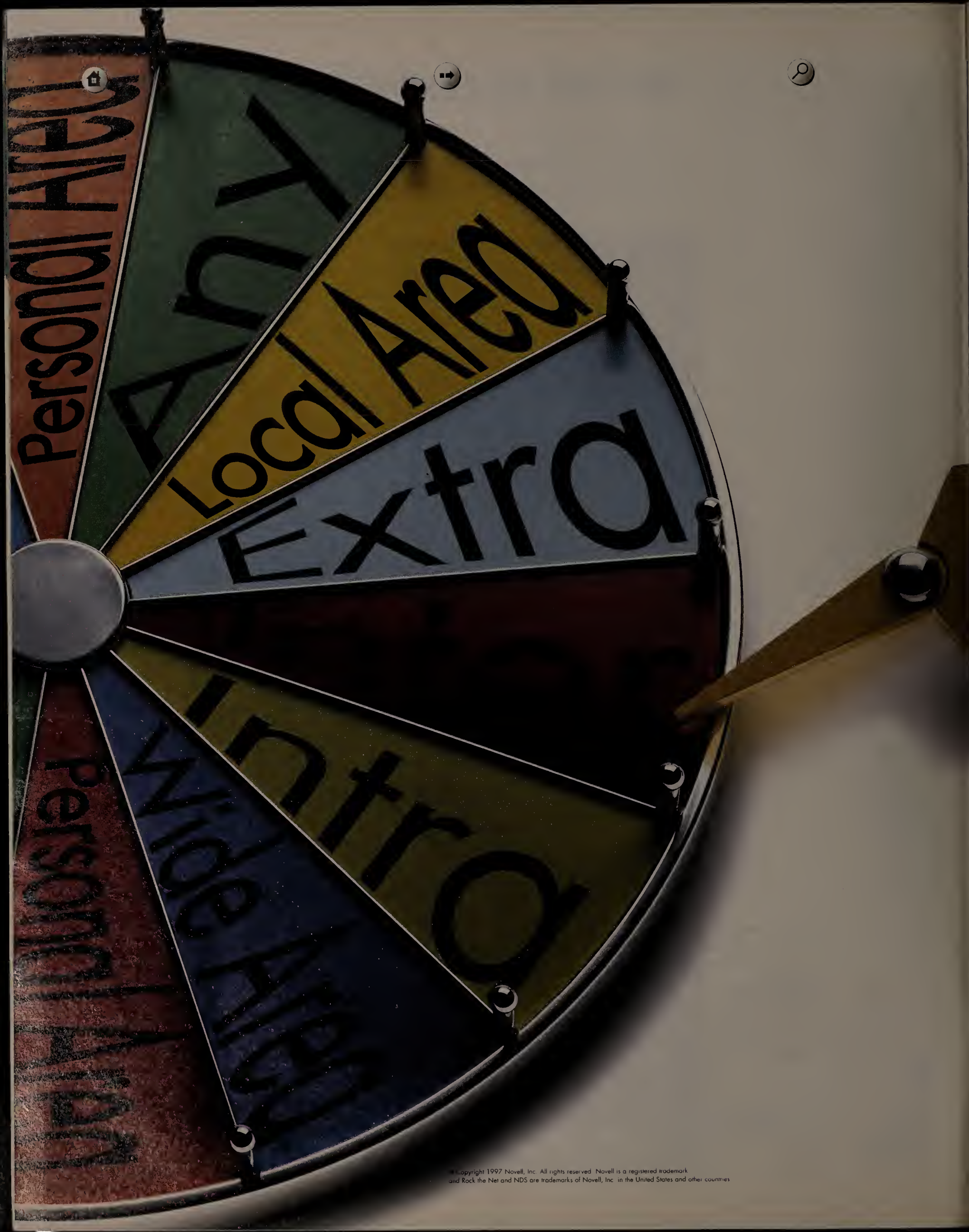

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Users want apps with a view

▸ *Vendors integrate tools, focus on performance*

By Patrick Dryden

SYSTEMS MANAGERS can already extract performance data from routers, servers, databases and middleware.

Now, they're looking to take their analysis to the next level — obtaining a single view of how applications are running.

And vendors are trying to deliver by integrating diverse tools and focusing them on application performance.

Tivoli Systems, Inc. this month hopes to release such an application-centric interface for users of its TME 10.

PHOTOS BY PAT DRYDEN

"We want to know who else is logged on and available to take over the failed station's scheduled work."

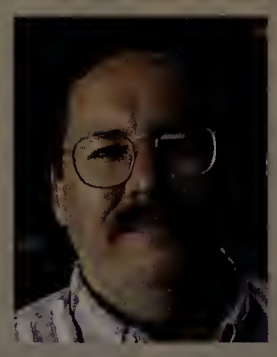
– ROBERT TUCKER, DST TECHNOLOGIES

Unicenter TNG from Computer Associates International, Inc., and OpenView from Hewlett-Packard Co. already offer these building business-process views. "We want to put one icon on a support person's desktop that will turn color if something happens to the electronic-mail system, without regard for the underlying platforms and connections," said Alex Beylin, a systems manager at Chrysler Corp. in Auburn Hills, Mich.

To get there, Chrysler consolidates alerts from all its systems through TME 10 and is starting to gather status information about applications from log files.

The next step is "the abstract view of all problems across the enterprise from a business perspective," either by adding Tivoli's new interface or integrating other vendor options, Beylin said.

Specifically, Tivoli will offer the Global Enterprise Manager and the Application Policy Manager as a layer on top of the tools that make up the TME 10 network management framework.



"We want to tap in to a global repository to focus on the alerts and error messages meaningful to each business group."

– BILL ORIS, J. P. MORGAN

Users define the relationships between network, system and application pieces, then build models and policies for managing complex processes.

HANDY TOOL

Several users of Unicenter TNG said they already take advantage of the relationships and business process view built in to that suite.

"We're trying to track usability from the end-user perspective, not just whether the systems and network are available," said Donny Lippard, assistant vice president of field support at Allstate Insurance Co. in Northbrook, Ill.

For example, Unicenter TNG watches one new application running at the workstation, across the network and on multiple AS/400 and RS 6000 servers. For the first time, operators can detect connection timeouts and runtime errors in one place, Lippard said, "so we can understand if we're meeting the end-user expectations."

Unicenter TNG is replacing most of the 150 tools in use at J. P. Morgan & Co. in New York so IS can make sure the fixed-income services applications, for example, are running properly on any system and for users at any location.

"We want to tap in to a global repository to focus on the alerts and error messages meaningful to each business group," said Bill Oris, an IS vice president at J. P. Morgan.

DST Technologies, Inc. this month will integrate its custom workflow software with Unicenter TNG to better monitor mutual fund trading applications.

"We can tell when a workstation goes off-line now, but we want to know who else is logged on and available to take over the failed station's scheduled work," said Robert Tucker, chief technology officer at DST in Kansas City, Mo.

Chevron Information Technology Co. integrates HP's OpenView and other tools to manage its network, Windows NT servers and SAP R/3 applications run by 10,000 users.

When 25,000 users migrate to a common desktop configuration this year, user functions must be monitored. "We'll have to quickly judge the impact of each outage on the service promised to each customer group," said Roberto Montero, senior enterprise systems management analyst at Chevron IT in San Ramon, Calif. □

"We're trying to track usability from the end-user perspective, not just whether the systems and network are available."

– DONNY LIPPARD, ALLSTATE INSURANCE

Start-up offers Java-based substitute for mainframe-based business apps

By Barb Cole-Gomolski

A START-UP IS taking aim at application stalwarts such as SAP AG and Oracle Corp. as well as workflow vendors with Java-based software for designing modular business process applications.

Dallas-based Fuego Technology Corp., which was launched at the recent Java Internet Business Expo in New York, is a spin-off of 14-year-old InterSoft Argentina S.A., a Buenos Aires-based software house that specializes in Unix databases and applications.

Fuego's software is aimed at companies looking to replace or enhance monolithic back-office applications with modular, Java-based systems. With the Fuego software, a user can store business processes — such as the steps involved in verifying product inventories — on a server and reuse the business processes across multiple applications.

Fuego plans a third-quarter rollout of a Java-based process management engine and a Java application development environment. This approach could significantly reduce the time it takes to deploy back-office systems and let users dump monolithic applications that require costly customization.

"Theoretically, you could get rid of your SAP system with something like this," said Yvon Lemieux, workflow technologist at Cigna Healthcare in Bloomfield, Conn.

FUTURE WORKFLOW

Feature	Fuego	Forte Conductor
Process engine	Yes	Yes
Stand-alone client software for managing work	Yes	No
Availability	Q4	Q4

But the Fuego approach more likely will appeal to companies that have unique business processes that aren't included in packaged applications, said Connie Moore, vice president at Giga Information Group in Cambridge, Mass.

"For most sites, packaged applications still have a lot of appeal," she said.

Fuego officials pointed out that the company's software was designed to coexist with legacy systems. The process engine is expected to work with existing applications and Java-based application components from Fuego and third parties.

The suite also will include a client application with a drag-and-drop interface for creating business processes. That lets workers most familiar with the business process build it without the intervention of a programmer, an idea that appeals to Jason Cohen, chief information officer at Gerald Metals, Inc. in Stamford, Conn.

Cohen is using Conductor from Forte Software, Inc. in Oakland, Calif. — which is expected to go head-to-head with the Fuego offering — to build an enterprisewide application that will support trading, accounting and treasury functions for its metals and financial services businesses.

SMOOTHER WORKFLOW

Cohen explained that instead of having 50 big processes, his application will have 500 discrete tasks that are strung together as 50 workflows. That approach lets him reuse the workflows in different applications, he said.

"If you are looking for the packaged solution, this isn't the approach for you," Cohen explained. But the process-based approach will let him deliver his application quickly and remove most of the custom coding, he said. □

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Computer Industry

Users: Apple's Power grab effectively kills Mac clones

By Kim Girard

USERS MAY SOON be without any Apple other than the real thing — with leading Macintosh clone maker Power Computing out of the picture and the other clone makers barred from future licensing deals.

Apple officials openly criticized clone makers for not paying their fair share.

Following wide speculation, Apple Computer, Inc. last week bought Round Rock, Texas-based Power Computing Corp. for $100 million in stock. The move not only eliminates the most vocal clone maker, but also nets Apple technology designed to run Microsoft Corp.'s Windows NT on the PowerPC chip.

Power Computing, which was licensed to sell Macintoshes in 1993 and has been making Macintosh look-alike machines since 1994, will continue to sell Mac OS-compatible computers until Dec. 31. Apple officials said there is no plan to buy any other clone maker.

The move wasn't unexpected, considering Apple officials have openly criticized clone makers in recent weeks for not paying a fair share of licensing costs.

"Apple is giving a several-hundred-dollar subsidy with each licensed copy of the Mac OS," said Steve Jobs, co-founder and board member of Apple, in a letter to Apple employees last week. "Our board is convinced that if Apple continues this practice, the company will never return to profitability, no matter how well Apple performs, and the entire Macintosh 'ecosystem' will continue to decline, eventually killing both Apple and the clone manufacturers."

The goal is to eliminate Macintosh cloning, said Rob Enderle, an analyst at Giga Information Group in Cambridge, Mass. "It never really made any sense to do this," he said. "To do cloning right, you need to be hardware-independent. You can't try to create your own competitors. It just doesn't work."

But users, who protested with online petitions and postings, said Apple needs the competition that Power Computing and fellow clone makers Umax Computer Corp. and Motorola, Inc. provide by making faster, cheaper machines.

"They felt they needed us out to survive," said Bob Groppo, vice president and general manager at Power Computing's PC division. Power Computing, which began to give up the fight last month by delaying going public and halting construction on a new building, is now shifting gears. It will roll out a high-end portable Wintel PC, called PowerTrip, that is aggressively priced at about $3,000.

Gene States, software configuration manager at Eastman Kodak Co. in Dallas, said he is surprised Power Computing gave up. "They had a really good thing going," he said. "Power [Computing] was one of the first, and they seemed to be head and shoulders above the rest in terms of quality and getting things to market. [Apple] was never fast with new, hot technology. They just rehashed what they had."

"I never considered the clone builders a threat [to Apple]," said Frederick C. Moody, national news production manager at *The Wall Street Journal*, which uses several hundred Macintoshes. But Moody said the future of Macintosh software is more important in the long term than whether clones are built. "Clones are almost a side issue," he said. □

FAQs: What's next for Power?

Q: *Why did Apple buy Power Computing?*
A: Apple believes the company was cannibalizing sales of its own computers yet not helping to expand the number of their users. Also, Apple argues that the license fee doesn't cover the clone makers' share of expenses to engineer and market the Mac OS platform.

Q: *Why not raise license fees?*
A: Apple tried to renegotiate clone makers' licenses to include the use of the Mac OS on Common Hardware Reference Platform (CHRP) and portable computers. Power Computing and other companies rejected the resulting higher fees Apple requested for the license.

Q: *What will happen to Power Computing?*
A: The company will remain independent and retain its name, but Apple will get some of its marketing and sales employees, engineers and manufacturing experts and a list of 200,000 customers. Power Computing loses its license to distribute the Macintosh operating system.

Q: *What will happen to Power Computing's customer base?*
A: Power customers will get software support from Apple and hardware support from Power Computing until the end of the year, when Apple will take over all Mac OS support. Power Computing will continue to provide hardware and warranty service to customers.

Q: *What is the outlook for Macintosh clones?*
A: Clones can ship Macintosh look-alikes with Mac OS Version 7.6 until their licenses run out. They can ship Mac OS 8 on their current hardware, so long as they make additional payments to Apple. No machines will be built on CHRP.

Middleware becomes popular add-in

By Tim Ouellette

HARDWARE MAKERS and application vendors are becoming more interested in middleware as a way to make their servers more attractive to users already trying to stitch together different platforms and applications.

By bundling middleware with their products, vendors can help smooth communications among different products.

For example, BEA Systems, Inc.'s Tuxedo transaction monitor was bundled with IBM's RS/6000 PowerSolution servers last month, even though IBM sells two other transaction monitors, and with Sequent Computer Corp.'s NumaQ servers.

Other vendors, such as Hewlett-Packard Co., already bundle Tuxedo with their servers.

Benefits of bundling servers or applications with middleware:

- Saves in-house developers from coding their own middleware, reducing application development time by up to 70%
- Gives users a platform to build better integration between different servers in the enterprise
- Ties server and application integration to the application instead of requiring users to buy standalone middleware tools
- Gives complex middleware ready-made applications to connect to instead of requiring users to develop their own middleware applications

BEYOND THE BACK END

On the application front, PeopleSoft, Inc. this summer began embedding Tuxedo in its suite of applications. Lotus Development Corp. has built several Domino tools that integrate IBM's MQSeries messaging middleware.

Such deals give server and application makers another arrow in their quiver, but their proliferation also is helping push middleware out from behind the murky back-end world it has long inhabited.

"One of the traditional problems with middleware has been it didn't have the applications," said Jim Johnson, chairman of The Standish Group International, Inc., a consultancy in Dennis, Mass. "People buy applications and servers because they do the job. And with middleware built in, the job can get done more efficiently."

Server vendors and user sites typically built their own versions of middleware, which could be time-consuming and limited to a certain number of platforms (see chart).

But even with the new deals, the process isn't as simple as buying a server or an application and getting hooks to different systems. Vendors such as BEA still must help out at user sites to make sure the right connections are made between applications.

"These deals are not like traditional OEMs because middleware is still complicated, and we have to go in and make the final sell," said Ed Scott, vice president of worldwide operations at Sunnyvale, Calif.-based BEA. □

SPECIAL ADVERTISING SUPPLEMENT

September 8, 1997

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The RISE of the Self-Service Employee

BY JUDITH HODGES
Research Manager
Applications and Information Access
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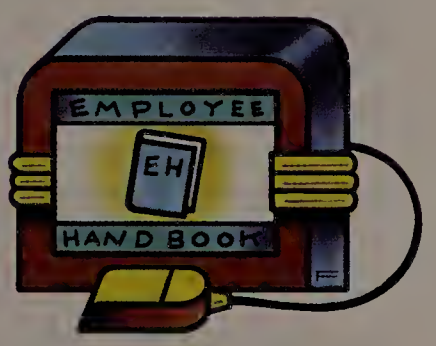


THE TRADITIONAL human resources (HR) function is fast disappearing. Faced with the same increasing pressures as other business functions – doing more with less and focusing only on high value-added activities — HR is undergoing profound changes.

Enter employee self-service (ESS).

ESS applications are becoming more popular because of the benefits they provide. By freeing HR personnel from having to perform many administrative tasks, the software allows them to focus on more strategic goals such as HR consulting, directing company policy, improving employee relations, compliance/planning issues and organizational development. They also help eliminate (or at least reduce) the paper burden on HR.

Employees also like having personal control over their own HR information. Higher employee satisfaction levels have become critical for companies, since competitive advantage is increasingly related to their ability to attract and retain the most qualified and productive employees.

The popularity of ESS has been accelerated by the convergence of online technologies, including interactive voice response (IVR),

kiosks, workflow, the Web and client/server architectures. Through these online systems, employees have instant access to their personal information in HR files.

Some of these communication channels have supported ESS for years, notably IVR and touch-screen applications. Telephone response, or IVR systems are the easiest to deploy. They grant all employees ready access, but are restricted to numeric-only input. Touchscreen kiosks can be used 24 hours a day by employees without computer access, such as those on a manufacturing shop floor. Kiosks have limitations — lack of convenience and shorter interactions — but they allow employees to update data as well as make inquiries into their employer's retirement and medical plans.

The introduction of more robust, client/server HR applications is also making it easier for companies to move to a self-service model. Distributed desktop solutions are appearing that can easily extend HR information out to individual employees and their respective managers and up to executives. These new HR software products simplify the task of accessing and organizing personnel information — no more digging into personnel files to seek historical data. People can create electronic forms, review them and change them, before routing them to the HR and payroll systems.

ESS gives employees personal control over their own HR information. New online applications are giving them access to and permitting them to makes changes to benefits such as their 401K retirement plans and stock purchase plans.

New role for HR

More and more, companies are looking to their HR departments to provide on-demand information about applicants, employees and benefits. Documents such as employee change forms for benefits enrollment, the processing of which once consumed vast amounts of HR staff time, can now be handled by the employees.

Through online benefits enrollment, new employees can enroll and current employees who experience a change in family status (e.g., marriage or birth) can amend their benefits selection without having to contact the HR department. Some online applications even include built-in calculations that tell employees how much an optional benefit will cost them. This way, there are no surprise deductions at month's end as with the previous delivery methods, and the HR group has to respond to fewer questions.

New online applications give employees access to and permit changes to their 401K retirement plans and their company's stock purchase plan. An employee who wants to purchase stock is given specific online instructions, making it easy to set up a brokerage account.

Document imaging and workflow are also key parts of the solution to HR's paper overload.

SPENDING SPREE

The dramatic surge in spending on human resource systems is a direct result of the increasing acceptance of employee self-service (ESS) solutions. This phenomenon will drive market growth into the next decade.

Worldwide sales for client/server HRMS/payroll software products rose to $748 million in 1996, up 52% from the year before. IDC expects that the market will grow at a compound annual growth rate of 37% to reach $3.6 billion by the year 2001.

ADVERTISEMENT

DEMOCRATIZING CORPORATE INFORMATION

PeopleSoft 7 leverages the Web

THE INTERNET CAPABILITIES offered by the upcoming release of PeopleSoft 7 are democratizing the Web by making it easy for everyone — from technical experts to occasional users — to realize the benefits of corporate information.

Based on a new Java Web client, the Internet component of PeopleSoft 7 enhances mission-critical applications by streamlining information access and slashing the time spent on administrative tasks. "Release 7 truly allows us to exploit the Internet," says Row Henson, vice president, HRMS product strategy at PeopleSoft. "It creates information access for the non-departmental users who were traditionally left out."

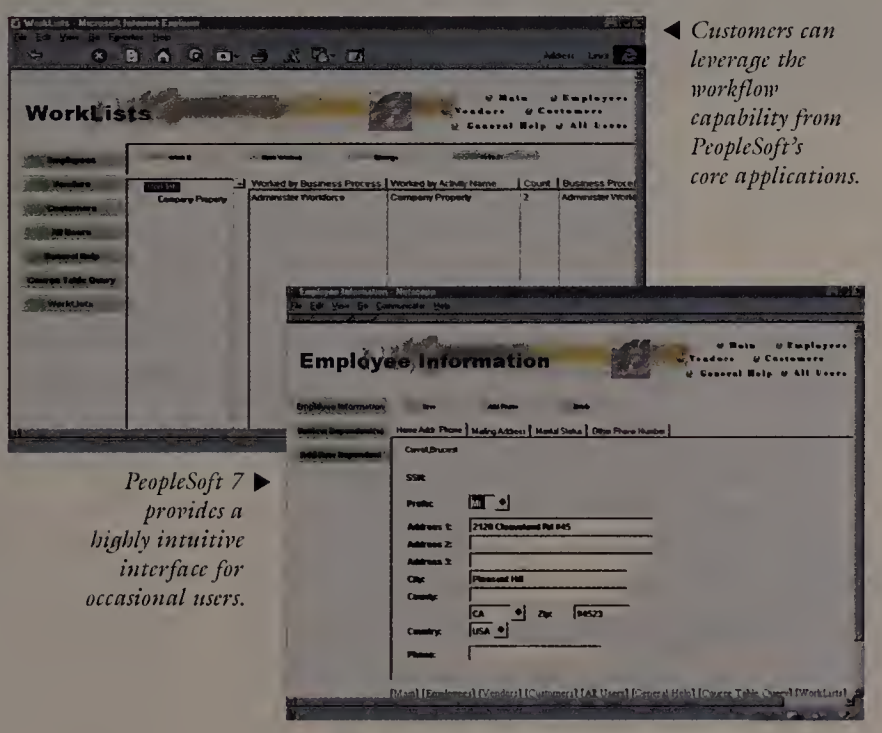
In this new Internet-powered environment, a variety of users will benefit. HR departments will no longer have to maintain records, because records management will be pushed down to the true source of data: employees and line managers. Empowered by Internet access, these employees will be able to manage and administer their own records. HR will then be able to focus on accessing valuable external information for multiple tasks. Hiring managers will be able to search the Web for the best job candidates and determine how much they should earn in various regions of the country. Or they may research demographics to locate the best site for a new plant. The opportunities are endless.

"Internet-enabling is not just about taking a system and putting it out on the Internet," Henson notes. "It's about changing the way an expanded community of people now are able to use that data."

According to Dean Alms, manager of product strategy for electronic commerce at PeopleSoft, "Empowering occasional users means supporting the platform they're already using. For example, if marketing uses Macs and engineering uses Unix or NT, we can now reach them using the Java-based Web Client and Universal Applications.

"These universal applications provide a highly intuitive interface for users that may only access them once a week, once a month or even once a year. And because these applications are written in PeopleTools, customers can leverage the business rules, workflow capability and security features from our core applications. Web solutions without links to workflow are doomed."

Whether occasional or not, the internal users, suppliers and customers linked via Internet technology form a powerful community of shared interests that PeopleSoft refers to as the "interprise." Bolstered by an arsenal of technologies from electronic data interchange (EDI) and electronic funds transfer (EFT) to workflow and Web browsers, the PeopleSoft 7 release is a formidable instrument of productivity.



◀ *Customers can leverage the workflow capability from PeopleSoft's core applications.*

PeopleSoft 7 provides a highly intuitive interface for occasional users. ▶

Imaging technology is frequently used to scan in resumes, which are then placed in an electronic filing cabinet. Applying workflow technology to other paper-based tasks such as travel expense forms greatly simplifies life in HR: the forms can simply be electronically routed to the appropriate departments, so there is no need for making multiple copies of expense forms and receipts

Online recruitment

Businesses are increasing their use of the Internet as a recruitment tool. Companies need the ability to recruit quickly and to have searching functionality if they are to find the best candidates. Companies that implement their own recruitment site on the Web can post positions online, where they are made public to millions of job seekers worldwide, 24 hours a day. A qualified job seeker anywhere can access the posting and respond immediately. Another advantage is that the content of the posting can be changed easily — and as often as necessary.

There are alternatives for posting job ads, too. A company can set up its own Web page, and/or link its Web page to one or more of the 500 Web recruitment sites such as the Online Career Center, Monster Board or Career Path. New products from software suppliers such as these and others have transformed the time-consuming and costly process of finding a candidate into an efficient online process. HR departments that post jobs on the Internet can track the status of responses to an ad, view the total number of responses and monitor the total number of ads.

Online recruitment is just one part of the self-service HR systems that are allowing companies to obtain more value from their HR organization. More and more, corporations are rolling out HR self-delivery systems that allow them to maximize the potential of their workforce, while minimizing their HR costs.

Judith Hodges is Research Manager, Applications and Information Access (AIA) at International Data Corp., a market research firm based in Framingham, Mass. In this role, she has responsibility for cross-industry applications, including HR, financials, distribution, sales and marketing and customer service/support. She can be contacted at jhodges@idcresearch.com

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Illustrations by Mark S. Fisher

RIGHT FROM THE DESK

HR intranets may be the greatest boon to HR departments since the arrival of the desktop computer. Employee self-service (ESS) intranet applications allow employees to view benefits, enter travel and expense reports, verify employment and salary information, access and update their personal information, and enter data that has a time constraint to it. Through this completely electronic process, employees are able to look up individual payroll, 401K and health benefits information online, right from their desks.

Intranet applications also allow companies to process all the most common HR functions over their corporate intranets. In addition, intranets allow the HR department greater efficiencies as they can now provide around-the-clock services to their customers, the employees. They can also disseminate valuable information faster than previous communication channels. Intranets can collect information online from employees for input to their HR records, and they can enable employees to perform former HR-related tasks with less HR intervention.

Minimal training is required to use a corporate intranet. Employees get the information they seek quickly, plus the Web browser is an easy and increasingly familiar user interface for the vast majority of corporate workers. All the employee has to do is point, then click.

Another benefit of the intranet is that it can serve as a superior training tool. Employees can easily download instructions and processes to get the information or education they need. In addition, employees using new technology can view training videos over the intranet on demand. Thus, the intranet obviates the need to buy and track training videos.

Employees can also use their corporate intranets to produce automated paysheets, the online alternative to timecards. These electronic forms have made viewing, entering and adjusting payroll information easy for the employee.

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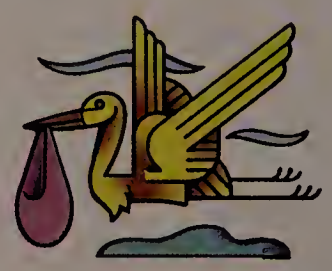
SPECIAL ADVERTISING SUPPLEMENT

ESS Gives Workers Independence,

BY COLLEEN FRYE

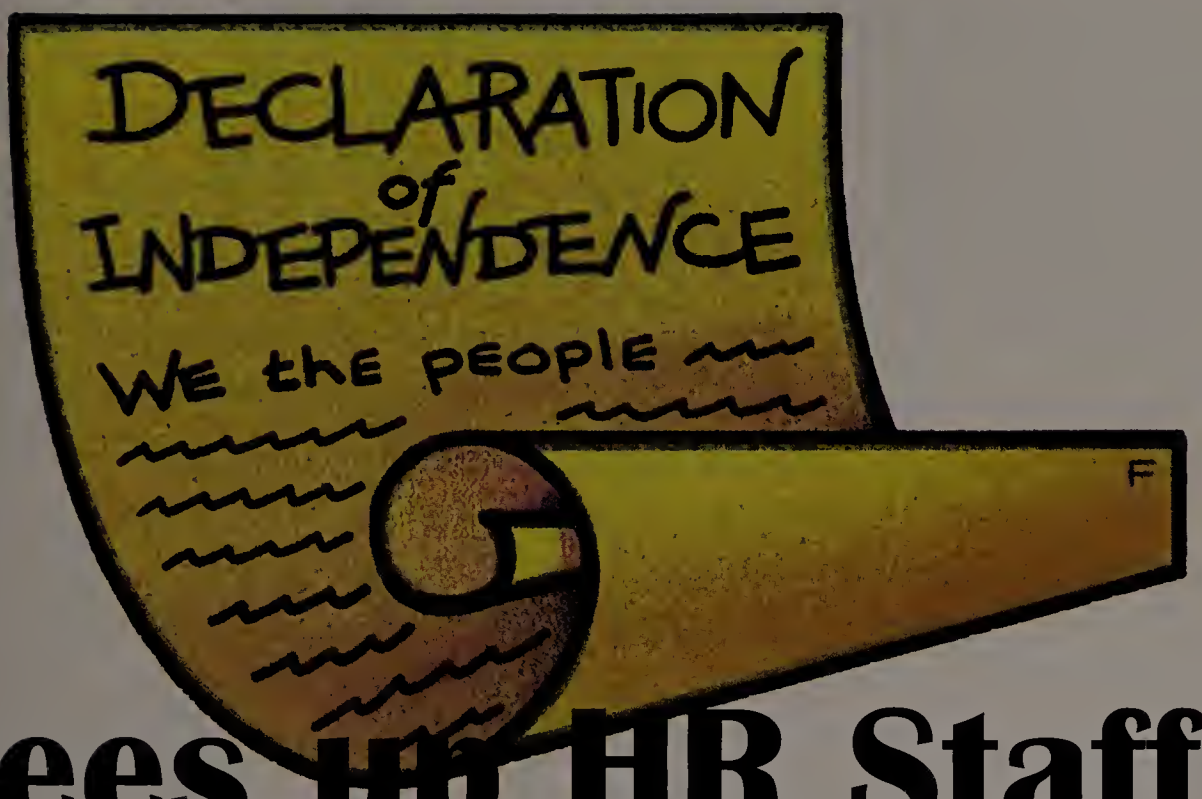
"We're going to have a baby. What should we do?" *For an expectant parent wondering how an impending birth will impact their employee benefits, the answer to that question is critical information. But for a human resources professional, that answer is much the same for every anxious employee who calls or comes into the HR department. Every day, HR employees field questions like this repeatedly, as well as ones about health benefits, payroll and other subjects of concern to their fellow employees.*



"That's not a great use of their time," says Darrell Moore, director of compensation and benefits at Fujitsu America Inc., in San Jose. That's why Moore and many other HR professionals are looking to intranet-based employee self-service (ESS) systems. By providing employees with easy access to certain information , these systems allow HR professionals to offload some of their routine tasks, so they can use their time more effectively.

ESS offers companies other benefits. It reduces administrative costs on paper, postage and data entry, while increasing employee satisfaction because workers can get answers to questions quicker.

Most early ESS systems were based either on touchscreen kiosks tied to corporate LANs, or integrated voice response (IVR) technology that



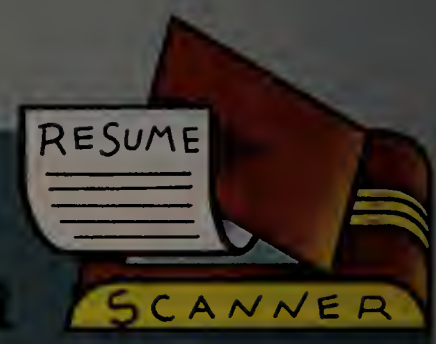
Frees up HR Staff

enabled employees to use touch-tone telephones to access HR systems. But the proliferation of corporate intranets has accelerated acceptance of ESS. ESS systems from software specialists like Employee Communications Services in Natick, Mass., or Interlynx Technology in Boston, supplement the functionality of a corporation's existing HRMS system by leveraging the HRMS software's APIs to maintain employee benefit data and invoke those rules. They let employees access an HRMS through many channels: telephone, fax, E-mail, Web-enabled kiosks, an intranet or even the Internet.

However, of all these options, "the backbone to facilitate [ESS] the best is the intranet," says Moore of Fujitsu. "The tools and different systems we can utilize over the intranet are easier to work with and navigate through."

According to Moore, intranet-based solutions have several advantages over IVR. One is cost; while IVR allows companies to reach employees who don't have access to a PC, it is much more expensive than creating an intranet, once the costs of phone line licenses and telephony servers are included. Another is speed. Doing online enrollment through a point-and-click operation on a home page rather is quicker than listening to all the options and pressing numeric keys on a telephone. "Browser technology is very efficient the way it processes," says Brian McIntyre, president of Working Concepts Inc., a Columbia, Md., consulting firm that specializes in implementing enterprise HR and financial software solutions.

However, for software suppliers creating ESS solutions that link to an organization's enterprise HRMS, it is tough to stay abreast of the rapid proliferation of Web browsers and communications protocols. "Keeping up with all these emerging presentation technologies makes it difficult for us to address a universal audience," says Kenneth F. Phillips, president of Employee Communications Services, a company whose product, Rewards Management System, allows large corporations to manage employee benefits. "Our engineers have to duplicate a lot of these



HR departments turn to the 'Net to keep up with recruiting pressures

HR is being put on the hot seat as line managers scramble to keep up with staffing needs, says Rob McGovern, president and CEO of NetStart Inc., a Reston, Va., developer of Internet recruiting solutions. Increasingly, HR departments are turning to the Internet as a way to keep up with recruiting pressures. In addition to utilizing commercial Web sites such as The Monster Board and Career Mosaic, businesses are using their own home pages to post job opportunities and using Internet-enabled software solutions to retrieve, track and rate job candidates.

According to IDC, 54% of companies contacted in a 1996 survey currently use the Internet for electronic job postings. By 2001, IDC estimates that 96% of companies will be recruiting on the Web.

McGovern lists three factors driving the increase in online recruiting: a good economy, a shortage of talented people; and the fact that businesses are trying to reduce the traditional costs of recruiting, such as expensive newspaper ads and fees by headhunters and recruitment agencies.

Online recruiting systems allow line managers to get more involved in the hiring process. In some companies, the hiring manager is the department manager. But firms that are more HR-centric employ the NetStart product as a triage tool, using it to screen the applications, passing the appropriate candidates on to the hiring managers. The NetStart system is designed for either type of

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Naomi Lee Bloom,
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Speakers:

Barbara Beck,
Vice President of HR, Cisco Systems

Tom Stewart,
Fortune Magazine Columnist and Author of "Intellectual Capital"

Al Walker,
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Vinnie Mirchandani,
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Barbara Noti,
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Catherine Loup,
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VENTURING OUTSIDE THE FIREWALL

Corporations are fairly comfortable with the concept of intranet-based ESS, but putting HR-related information out on the Internet raises serious concerns over security. "Currently, most ESS deployments are inside the firewall," says Kenneth F. Phillips, president of Employee Communications Services, a software company that offers benefits-related ESS for large companies. "When you're talking about permitting enrollment outside the firewall, most companies are a little bit squeamish."

There is good reason for such concern: confidentiality. "Employees worry about who can really see [their] information," says Jeffrey Roe, director of corporate IS for Sedgwick, Inc., a broker of insurance and employee benefits. "Whether those concerns are true or perceived, it's a big stumbling block for companies."

Employees are rightly concerned over who has access to such information. "Who their family is and who their dependents are — people like to hold information like that close to the vest," says Phillips. "Exposing data that might allow an outsider to learn the social security numbers of your spouse, the birthdates of all your children, is something a lot of people are concerned about."

So concerned, he notes, that many corporations don't want to be involved in storing such data. They prefer to leave that responsibility to the health plan provider. "Your employer may tell the health plan you have family coverage, but will let the health plan adjudicate who those family members are," says Phillips, noting that this trend is particularly relevant as more companies adopt liberal "spousal equivalent" policies that extend the definition of a family member.

But confidentiality concerns are not holding bleeding-edge companies back. "Of course, security is a concern," says Richard Hughes, manager of employee benefits at Elsag Bailey, a firm that plans to add Web links to its third-party providers so its employees can go out through the firewall and access those sites.

But the advantages outweigh the risks. "We did not want a good idea to be killed due to security reasons," says Hughes. "Besides, we're less concerned about [a hacker accessing employee information outside the firewall] than about employees seeing each other's records within the firewall."

Phillips notes that in the past six months, many companies are becoming more open to the concept of ESS over the Internet. As an example, Fujitsu is one company that has announced plans to extend access to its intranet-based ESS system to the Internet.

operating environments where our software is going to exist," he says. "It's a big challenge; they have to be on it constantly."

Transition period

Once a company decides on an intranet-based ESS solution, the transition period can take up to nine months. The customer must, with its software supplier, first go through the discovery process, which consists of finding out where the current data resides, what rules need to be enforced and what processing requirements there are. Next is the conversion phase of moving everything from the legacy system to a client/server platform. (Often there is a period where both systems are run in parallel, with the switch-over occurring at the beginning of a Plan Year, the benefits equivalent of a fiscal year). Following that is a period in which different levels of functionality are added.

Fujitsu is in the process of replacing its DOS-based benefits system with HRConnect, a 'Net-based product from Conduit Software, in Norcross, Ga., that enables companies to redesign their processes so that employees can conduct their own business transactions.

According to Fujitsu's Moore, the ability of HRConnect to work with many different back-end systems appealed to Fujitsu, because the 16 companies in his group use a variety of databases from which benefits information must be obtained and pulled into the central HRMS. Those 16 companies vary in size from a few employees to 2,000, but "what they have in common is the intranet," says Moore.

Fujitsu is phasing in intranet-based ESS, due to lack of employee familiarity with and access to desktop PCs, particularly among manufacturing users. But once all the users get comfortable enrolling in their benefits programs over the intranet (Fujitsu plans to deploy its ESS solution in October), he says, "We'll extend it to include new hires, family status changes that might effect flexible benefits, and ultimately extend [access] to the Internet."

Moore's group is also working on an automated electronic summary system, tied to intranet-based open enrollment, that will feed

information on the rules of benefits to employees in a manner that is both logical and easy to navigate. The group will take the traditional printed booklet of information for employees and redesign it for the Web.

At AlliedSignal, a manufacturer of aerospace and automotive products in Morristown, N.J., roughly 20% of the employees are involved in manufacturing and lack access to a desktop PC. For several years, the company has used touchscreen kiosks to enable employees to change some information on the HRMS in its legacy system. Then in 1996, the firm installed a PeopleSoft-based client/server HR system and connected the kiosks to it. Now the long-range plan is to allow access to the corporate intranet from desktop PCs and kiosks, according to Nick Messerschmidt, director of HR services and strategies for AlliedSignal.

To achieve this, the company chose the InterAction:Employee Life Cycle Management Software from Boston-based Interlynx Technology. The software integrates with a company's existing HR system and allows employees access from the intranet, as well as phone, fax, E-mail and kiosks.

AlliedSignal selected the Interlynx product, because it had decided to add health care and dependent spending accounts to its list of benefits. "We needed to enroll the whole company in the benefits of their choice, rather than providing locally administered benefits," Messerschmidt says. "Because we had a short timeline to get the enrollment engine operational, we began to seek a turnkey solution, which led us to Interlynx." AlliedSignal completed that enrollment in May, with 66,000 of its domestic employees accessing the system either via phone or the company home page. Through Interlynx, they can now make family status changes over the phone.

More control

Intranet-based self-service is a way of giving employees "more control over what they can have," says Jeffrey Roe, director of corporate information systems for Sedgwick, Inc., a Memphis broker that provides insurance, employee benefit and financial services.

But that's not the only benefit Roe expects to reap with ESS. The technology reduces costs, particularly in terms of postage. "Once you eliminate FedEx and mailing, you eliminate a huge overhead," he says. ESS is also faster; "you don't have to wait two to three days" to obtain information, he adds.

Last fall, the company, which uses HRMS software from Lawson Software, began to offer a voice enrollment option to its benefits program. This year, open enrollment is available via the intranet also, using Lawson's Web Page Generator product. (Sedgwick plans to upgrade to Lawson's latest HRMS release later this year, which incorporates self-evident applications, i.e., Web-enabled applications that require no training.)

"Employees were saying, 'What do I do with this stuff?' Now we can't get enough information to them."

Jeffrey Roe
Director of Corporate IS

Sedgwick is currently working with a consultant to build a formal benefits online process, one that will offer more than open enrollment, including the use of electronic forms.

Although only about 15% of Sedgwick's employees are using the Web for benefits, "the Internet and intranet are huge for us," says Roe. "In one year, it went from employees saying, 'What do I do with this stuff?' to now we can't get enough [information] to them. HR managers want to do more to manage the process, and workers want access to more information."

Moving HR to the intranet even makes sense

for non-corporations. At Skidmore College, in Saratoga Springs, N.Y., most of the academic population is already proficient with Internet tools and knows browser technology such as Netscape. Skidmore recently purchased HR and payroll software with Web extensions from Oracle Corp. to replace a legacy system running on a minicomputer. According to Ken Hapeman, director of the college's Center of Information Technology Services, the Web extensions will be added once the systems is implemented, most likely starting with benefits enrollment.

"The backbone to facilitate ESS the best is the intranet."

— Darrell Moore
Director of Compensation and Benefits

"Employees are interested in using the Web," says Hapeman. "The HR department is interested in the efficiencies. We in the computer center are interested in having the casual user get at applications through the Web. They're more easily supported than putting client code on every computer on campus."

Hapeman does not expect employee training to be a huge issue. "The bulk of work that is process-oriented will be in the HR department itself, and most of them [HR professionals] have been to some Oracle training." He said the school will train a few people to be trainers in-house, and for the Web-based applications, "we're hopeful they'll be self-training."

Moving to the Internet

Companies are also starting to open up ESS applications to the Internet. Elsag Bailey, Inc., a process automation, systems and instrumentation company in Wickliffe, Ohio, began its foray into ESS in 1995 with an IVR system, part of the Atrium Empowerment suite of ESS software modules from Innovative Business and Training Solutions Inc., a Cuyahoga Falls, Ohio companies (acquired earlier this year by Ceridian Corp., a supplier of payroll and HR management solutions in Minneapolis).

The first process Elsag Bailey moved to IVR was its paper-based annual benefits enrollment. According to Richard Hughes, manager of employee benefits, after all the paper forms came back from employees, both his department and the payroll department would enter that information into the company's Ceridian HRMS system. The goal of an IVR system was to cut the cost of this process, and Hughes says it took only 12 months for the system to pay for itself.

This year, Elsag Bailey implemented a corporate intranet, and the company added Atrium Empowerment's Web version of open enrollment, plus modules for Profile, Career and Policy. Because workers were familiar with intranet technology prior to the rollout of these modules, no formal training was required.

According to Hughes, the Profile application, which allows employees to call up and make changes and updates to their personal information "is a real benefit. Since we've had it up [on the Web], we've had employees who have found an ex-wife still listed as a beneficiary on a policy, or an address they may have lived at two years ago." Changes that employees make via all the Atrium applications automatically update the Ceridian HRIS, eliminating any rekeying.

Elsag Bailey is looking to extend its ESS solution beyond the intranet to the Internet as well. Hughes plans to add links to the company's third-party providers, such as its 401K provider and health carriers, so employees can go out through the firewall and access those sites.

Security is a concern, says Hughes, but a calculated risk that company management is willing to take. "By accessing our 401K provider's home page, our employees can review and transact their data online," he says. "There are too many good things about it to stop and worry about the one hacker" that might be able to access such sensitive information.

Colleen Frye is a freelance writer based in Bridgewater, Mass., who specializes in software-related issues. She can be reached at Feeneyfrye@aol.com

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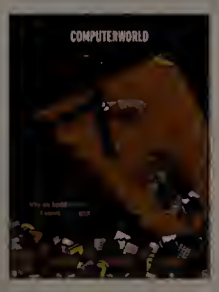

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Allow us to submit for your perusal (or fanatical scrutiny as the case may be), the Computerworld Leadership Series. A special monthly insert geared to senior-level IT managers, and chock-full of case studies, advice, polls and crucial insights into the latest management trends you need to know about to run your business more effectively. (Are you spending enough on your electronic commerce infrastructure? One estimate says the cost for global companies is $18 per desktop per month.)

The Leadership Series is free with your Computerworld subscription. To request additional copies of a Leadership Series article, call Michelle Olk at 800-217-7874.

You just might find that the IT ladder has a passing lane.

Don't miss the September 15 Leadership Series "Information Behavior: Why We Build Systems That Users Won't Use" by Thomas H. Davenport.

Applications that gather dust. Technologies no one understands. Information that's ignored. IS groups will continue to build systems that beg for users until they pay attention to information behavior – how people search, use, modify, share, hoard and ignore information. Davenport describes the rules of information behavior and how to apply them to building systems people will want to use.

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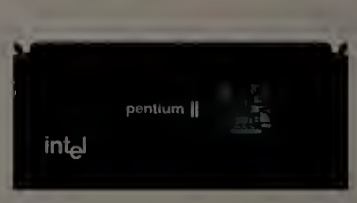

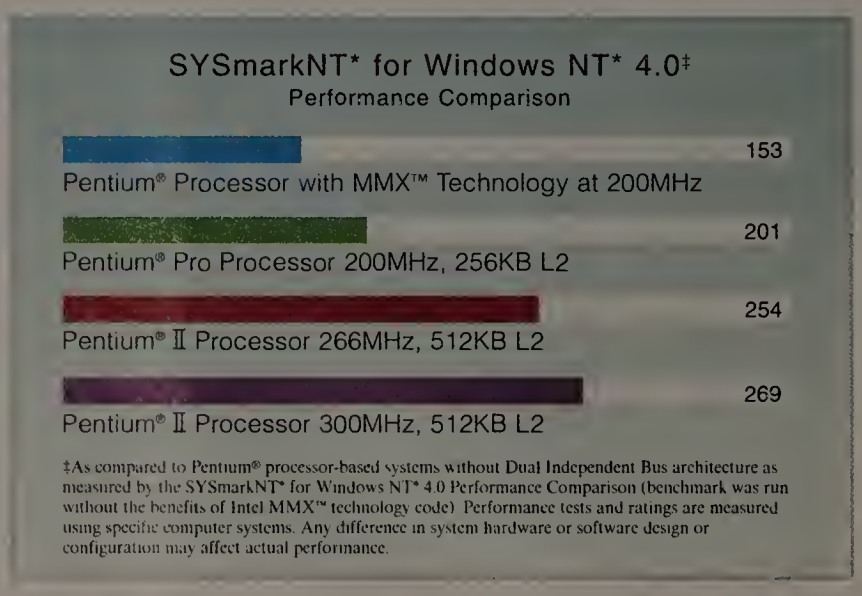

‡As compared to Pentium® processor-based systems without Dual Independent Bus architecture as measured by the SYSmarkNT* for Windows NT* 4.0 Performance Comparison (benchmark was run without the benefits of Intel MMX™ technology code). Performance tests and ratings are measured using specific computer systems. Any difference in system hardware or software design or configuration may affect actual performance.

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OPINION

Responsibility The horrific death of Princess Diana

has put the issue of personal responsibility back in the spotlight.

The question on everyone's lips seems to be: Who is responsible? The paparazzi who chased her that night? The tabloids? The public appetite for celebrity gossip? The hotel that provided the drunken driver?

A similar debate rages over questionable content on the Internet — be it offensive, libelous or just plain inaccurate. Who is responsible? The Internet service provider? The Web site creator? The viewer who chose to visit the site?

One test case is a libel suit now under way against the "Drudge Report," an online gossip publication,

and its Internet service provider AOL. Posted at the site was an unconfirmed report that a White House aide beat his wife. The accusation was later withdrawn and an apology was issued.

Suing the creator of the page makes perfect sense. But the notion that an Internet service provider can reasonably be expected to police countless pages of information on all the Web sites that use its services is absurd. That's like suggesting the telephone company is responsible for any illegal acts committed over its lines. It's not. Instead, the legal system appropriately focuses on the real perpetrator: the caller.

That approach must extend to the Internet. The difference between right or wrong doesn't change because the delivery method is electronic.

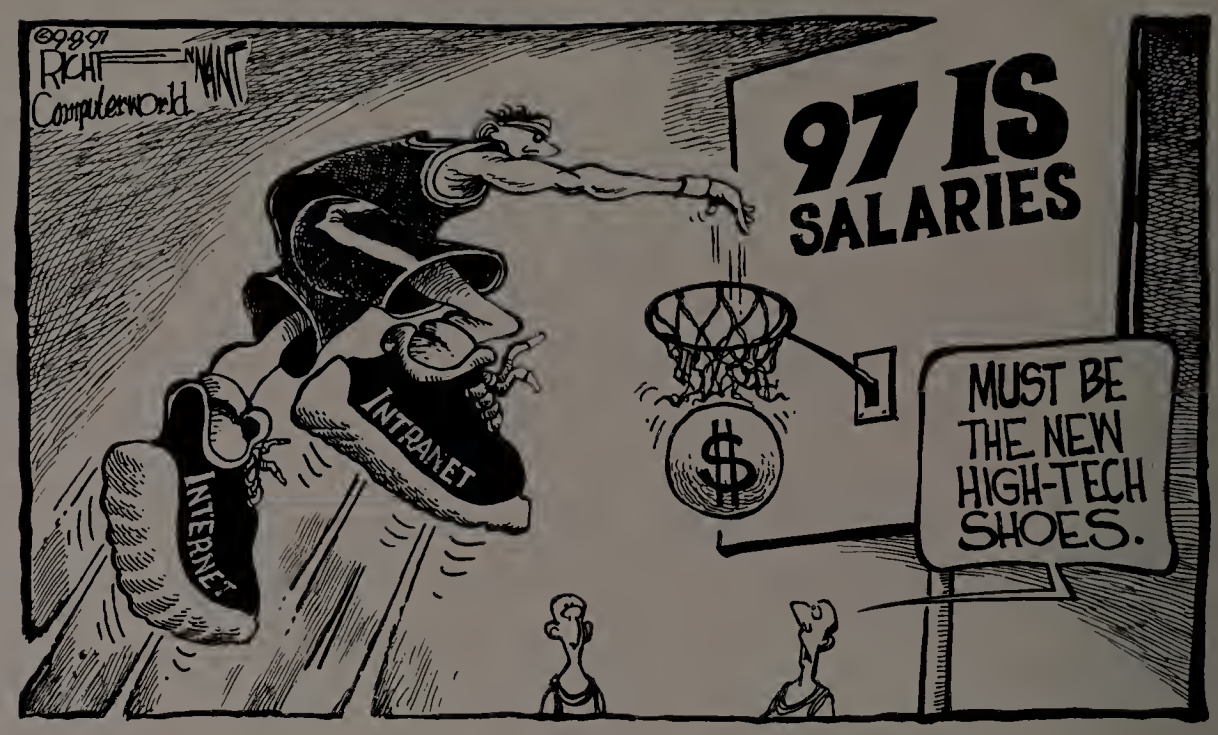
With that in mind, the owners of electronic commerce sites should carefully monitor who posts what on their sites. Your company's financial assets, reputation and brand names are at stake. And once Web-smeared, it can be hard to recover.

Just ask clothing manufacturer Tommy Hilfiger [CW, July 14], which was victimized by an Internet fable alleging racism by the company's founder.

Of course, Internet service providers can and should shut down illegal activities that are brought to their attention. But killing the electronic messenger isn't the answer to policing the Internet.

Enforcing personal responsibility is.

Patricia Keefe, *News editor*
Internet: *patricia_keefe@cw.com*



LETTERS

Mac users keep Wintel designer in the money

I READ EDITOR PAUL GILLIN'S column, "Sour Apples," [CW, July 21] with great enjoyment.

I still challenge any Macintosh user to specify what a Mac can do that a clone cannot. As far as operating system stability, I have consistent memory problems with Macs with 48M bytes of RAM that I don't have with Windows computers with 32M bytes.

I don't care for Windows 95, but use Windows 3.1 and Windows NT 4.0 with great success in very challenging graphic design situations throughout my company's Web site (*www.andromedan.com*) as well as in print and other media applications.

Thanks for your enlightened yet kindly suggestions to those poor Mac folks. I compete with them on a daily basis, and as long as my competition has to pay twice as much for a machine that is half as fast, I will continue to prosper.

I hope they never switch to the Wintel platform.

Doug Kennedy
Anchorage, Ala.

Keep that "800-lb. gorilla" at bay with competition

AFTER READING David Moschella's column, ["Read this before downloading," CW, July 28), I just want to say, right on! I like companies that work hard to provide the best product possible at the best price possible. Microsoft has instead become an 800-pound gorilla. Any aid and comfort for their competitors is good as far as I'm concerned. Keep it up!

Kevin Cooper
Pullman, Wash.

Custom systems provide features valued by users

AFTER READING the July 14 Buyer's Guide ["Desktop systems"] indicating that corporate computer buyers see initial cost of the system as the main purchasing factor, I was struck by how limited your sample was.

As a value-added reseller that specializes in custom systems, we serve a corporate client base that may look at pricing as a major component of their buying decision.

Desktop poll had a limited sample.

But their highest priorities may be the quality of components, ease of maintenance and cost-effective upgradeability that custom systems can provide.

Please start including custom systems as an option in user surveys.

They are still the best-selling computers on the market today.

Richard Halter
Corvallis, Ore
rjhstorm@proaxis.com

Editor's reply: *The 4,000 managers who received* Computerworld's *customer satisfaction survey represent a broad range of corporations, government agencies, educational institutions and other companies. The survey was intended to measure satisfaction with PC vendors in companies that employ hundreds of users. We asked managers to identify their PC suppliers from a list of brand name vendors or to name "other" suppliers. Relatively few chose the "other" option, and only a tiny fraction of those mentions could be identified as using custom-built PCs.*

Radio Shack supporter must be on a different frequency

I WAS BLOWN AWAY by the arrogance of Steve Mol's letter to the editor [CW, July 21] about the benefits of Radio Shack's customer database.

To say that customers shouldn't shop at Radio Shack if they don't want to give out their address is either arrogance or ignorance — maybe both.

For Mol to say that Radio Shack products don't contain a warranty card because the registration process is automatic ("provided that you offer your correct name and address") is curious. Who would know that other than someone who works for Radio Shack?

After all, no one is really buying anything of importance there. Sure, if I need speaker wire for my stereo or an adapter for my phone, Radio Shack is one of the first places I will go.

But for major appliances such as computers or stereos, I will always go to one of those big, cold, impersonal stores on the busiest street in town.

Walter Edvalson
Layton, Utah

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Think 2000 is bad? Just wait 'til 2001

Michael Cohn

The last thing you need is more gloom and doom. You already work 80 hours per week, and you're months behind. Your wife, your kids, your *dog* doesn't recognize you. You don't take vacations — just aspirin. Well, you're probably not going to like this, but it's about to get worse.

This year 2000 thing is going to hit like a ton of bricks. And that's the good news. Because after 2000, some really bad things are going to happen — even worse than what's happening now.

Maybe we fix all our year 2000 bugs, or maybe a few million lines slip through the cracks. Maybe a bunch of overlooked, mischievous chips get cranky on Jan. 1, 2000. Maybe it takes a few days, weeks or months before it all hits the fan. But there could certainly be a lot of it.

Sadly, somewhere between 2000 and 2001, we'll probably need to squeeze in 40 more years.

And if a whole bunch of executives can't fathom/understand/envision that even now, they definitely won't *after* it happens. They'll just wonder why their bank, cable TV or toaster oven doesn't work like it used to.

And they will blame us — the easy targets, the programmers, the guys who have been warning them about this since Dan Quayle was vice president, yet no one would even give us $595 to attend a conference in Kansas City.

But blame is just the beginning. We'll also be burnt out. We'll have spent 64 consecutive all-nighters trying to limp through 1999.

And in January when things are all over the floor, these year 2000-awakened executives will suddenly want us to drop all the stuff that we already dropped everything for.

"Forget everything else," they'll say. "Get the system back up and running! Do whatever it takes. And let us know if you need anything — as long as it's not people, time or money."

THE AX

This brings us to somewhere in the third quarter of 2000, when the next phase hits: the layoffs.

Because by then, most of that impossible-to-maintain legacy stuff will have been replaced by impossible-to-maintain client/server stuff, and a whole bunch of loyal Cobol workhorses slaving on year 2000 conversion projects will be out of work.

Latent demand will not save them. New projects will not save them. After 2000, companies will have no money, no patience and even less head count.

"Honest, boss, there's a whole lot of stuff I can do with my year 2000 experience."

And the boss will say, "I agree, just go do it someplace else."

Which finally leads us to 2001, when things get really ugly.

We're helplessly losing credibility. Losing funding. Losing all remaining hair. Suddenly all the new moved-into-production-too-soon systems (which replaced the old no-way-they-could-make-it-after-2000 systems) will start breaking all over the place.

And there will be more bugs. More trouble. More fists shaken at already-shaken programmers. More blame. More budget cuts. More layoffs. More aspirin.

Where does that leave us?

Eventually, all will be OK. There will be new technologies, new projects, new opportunities. IS will boom again.

Let's be honest. We've been doing this a long time. Since 1960, we've put 40 dedicated years of blood, sweat and elbow grease into data processing.

But sadly, somewhere between 2000 and 2001, we'll probably need to squeeze in 40 more. □

Cohn is a computer consultant in Atlanta and is pretty burned out already.

Readers respond: That clunker's no junker

Michael Schrage

Quite a few irritated readers tried to run me off the metaphorical road after my last column, comparing legacy systems with a 1971 Pontiac.

Tom Igleheart wrote with the following comments: "I own a 12-year-old car. It's a Mercedes diesel that I was surprised to obtain only a year ago at a price comfortably within my budget. I threw some money into it right away to get it in perfect mechanical condition. It runs like a top. It's the best combination of safety, reliability and economy I've ever owned in my life, and it doesn't look bad either. It has a remaining life expectancy that is still about double of any machine that will roll off the assembly lines this week in Detroit.

"Between now and the day it dies, it will have cost me, at most, one half the expense of keeping myself in a newer-model, sexier and more dangerous car. It's paid for, I understand everything about it, and I am in complete control of the 'investments' that get put into it (or not). And [during those New England winters], I don't have to frantically drive around those potholes that tend to leave lesser cars by the side of the road with their hoods up.

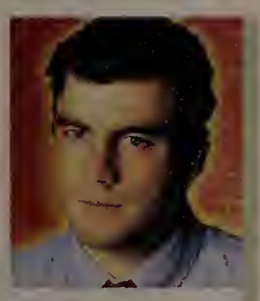
"Perhaps best of all, when the inevitable ads for the latest 'Unbelievable Weekend Blowout on the Hottest New Automobiles' interrupt my otherwise peaceful existence, I can laugh at the histrionics of the Madison Avenue crowd trying to drain my bank account through the New Car Debt Treadmill."

OK, fair comments.

The less charitable Ed Welbon added the following: "I don't drive a Pontiac, but I do drive a 1986 Buick. The last time I ran it through the quarter mile, it did 12.2 sec. at 124.4 miles per hour. I get 26 miles per gallon. Will your Porsche do that? I have changed the car quite a bit, but I don't have $500 per month payments. Sometimes the old things, with appropriate tweaks, really are better."

Now let's get something straight: I don't drive a Porsche. While we're at it, I also don't believe that just because a system is a 20-year-old legacy scribed in Cobol means it should be junked.

But in this column I've always tried to be honest, and I expect the same courtesy from my readers. Yes, there are 25-year-old Cobol systems that are mission-critical and that merit maintenance. But then could someone explain to me why outsourcing has become the fastest-growing service business around? Do you think we've seen distributed computing explode because legacy systems have been so well-maintained and are so "tweakable?"



Distributed computing did not explode because legacies are so well-maintained.

If the bulk of legacy systems are so robust, reliable, maintainable and cost-effective, why are so many companies radically transforming their digital infrastructures so often?

Simply because of new technologies? Get real!

Of course, maintenance isn't about throwing good money after bad. But do we really grasp the opportunity cost associated with preserving a legacy at the expense of creating new media for profitable innovation?

I'm very comfortable arguing that there are as many companies doing a superb job enhancing systems that should be replaced as there are companies botching client/server architectures and intranet implementations.

But that doesn't excuse or explain an attitude that legacy systems merit the quantity and quality of resources that they seem to be getting as 2000 approaches.

I admire people who can keep a classic car running smoothly and cost-effectively. But do you think they are the rule or the exception? □

Schrage is a research associate at the MIT Media Lab and author of No More Teams! *His Internet address is schrage@media.mit.edu.*

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Multimedia training

Multimedia-based training will more than double by 2000, from 16% to 37% of all training hours, according to a survey of 100 Fortune 1,000 firms by OmniTech Consulting Group in Chicago. Multimedia workstations are now on one in four employees' desktops. That will rise to one in two desktops by 2000. Current multimedia-based training budgets range from $10,000 to $6 million, with about half of all companies spending at or below $100,000, the survey said.

Shareholders sue MCI

Stockholders of MCI Communications Corp. filed a class action lawsuit charging that MCI's officers and board of directors misled them when they sold the company to British Telecommunications PLC for less money than expected. BT last month said it would pay about $17 billion for the 80% of MCI shares it doesn't own. Under the original agreement announced last year, BT was going to pay $21 billion. The lawsuit was filed Aug. 28 in U.S. District Court in Washington.

Do telecommuters at your company feel they are more or less a part of the office loop because they don't work in the physical office?

Base: 100 department heads at various companies

Source: Computerworld exclusive survey

Mastech consultant Sundararajan Parameswaran has worked his way across the country

MARK KATZMAN

Heartland is home for foreign IS pros

▸ *Company goes global for rural assignments*

By Julia King

A LOT OF systems integration companies persuade their consultants to take on projects in out-of-the-way places by paying fat bonuses and promising plum assignments next time.

Not Pittsburgh-based Mastech Corp. It relies heavily on the wanderlust of foreign professionals, whom it recruits globally for information systems jobs in places ranging from the prairies of South Dakota to the back hills of Tennessee.

"I call it the 'See America' plan," said Steve Shangold, vice president of professional services at the 10-year-old, $125 million software services company. Mastech's foreign IS consultants typically spend only about six months to a year in one place before moving on to another job, often across the country.

Mastech's customers, including Nissan Motor Corp. in Smyrna, Tenn.; Wal-Mart Stores, Inc. in Bentonville, Ark.; and LodgeNet, Inc. in Sioux Falls, S.D., get the benefit of consultants' broad and varied expertise, Shangold said.

A prime example is Sundararajan Parameswaran, a 28-year-old senior software engineer from Mumbai (formerly Bombay), India.

A Mastech consultant since 1992, Parameswaran's first assignment was in Dallas at IBM.

Foreign, page 42

Utility solves its data mart dilemma

By Craig Stedman

THE THOUGHT OF taking two or three years to build a big data warehouse didn't turn on executives at MEAG Power. But neither did the specter of sprinkling a bunch of stand-alone data marts around the Atlanta-based utility.

So the Municipal Electric Authority of Georgia (MEAG) joined similarly conflicted companies in searching out a middle road. The utility plans to incrementally develop a data warehouse by stitching together a series of data marts under a single database and architecture.

If all goes as expected, that will let it keep a tight enterprise-level grip on the data mart process. To further aid the cause, MEAG Power won't build data marts at the behest of individual departments. Instead, the company, which had $500 million in revenue last year, put the vice presidents of its five operating divisions on a board that will prioritize projects based on business needs.

"Management doesn't have enough patience for us to develop it all at once, and things [in the electric industry] are changing so quickly that we'd be trying to hit a moving target," said Meri Lea Miller, manager of MEAG Power's warehousing project. "But building unmanaged data marts just gives you a bunch of little data warehouses."

The incremental approach

Utility, page 42

Airline routes arriving data to one terminal

By Jaikumar Vijayan
CHICAGO

A NEW WORKSTATION environment is helping United Airlines get a better picture of its operations. And that could help the company save some serious money down the road.

The Chicago-based airline giant finished implementing an integrated workstation platform that gives staff at its Operations Control Center a single view of

Airline, page 42

United's technology accomplishment

Objective: To get all operation-related information (flight planning, aircraft routing and crew scheduling) from a single desktop station

How it was done: By integrating all mission-critical and decision-support applications spread across multiple platforms into an HP Unix workstation environment

Potential savings: $50 million annually in fuel, passenger misconnection and delay-related costs

Distribution package lifts bank merger

By Thomas Hoffman

DURING ITS RECENT merger with BayBank, Inc., Bank of Boston Corp. married 6,000 workstations to the same OS/2 application base in an effort that required quick delivery (seven weeks), minimal staff (six technicians) and one automated software distribution system.

The strategic use of the Enterprise Desktop Manager (EDM) from Mahwah, N.J.-based Novadigm, Inc. seemed like a no-brainer in the merger-crazed, resource-dependent banking industry.

Yet curiously, few banks use automated distribution software for any purpose, and many banks "never effectively merge their systems" at all, said Octavio Marenzi, research director at Meridien Research, Inc., a financial services and technology consultancy in Needham, Mass.

Bank merger, page 42

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CIO ,Cyberplay Computer Exploration Centers

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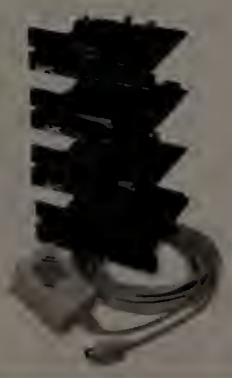

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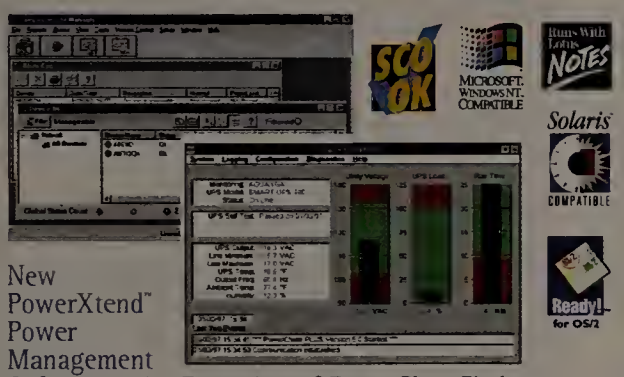

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Measure-UPS II	AP9612TH AP9612T	Temp, humidity and external sensors AP9612TH without humidity sensing.	$199 $149
Relay I/O Module	AP9610	Monitoring and control via dry contacts	$179
External Accessories	**Part #**	**Description**	**Price**
MasterSwitch	AP9210	Network manageable power distribution unit	$699
SmartSlot Expansion Chassis	AP9600	Allows an additional SmartSlot accessory to be used external to the UPS.	$75
Share-UPS	AP9207	For up to 8 servers sharing 1 UPS	$349
Measure-UPS Switch Kit	AP9813	Monitor cabinet access via Measure-UPS	$99

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Bank merger

CONTINUED FROM PAGE 39

The biggest roadblocks that keep banks from using distribution software include variations between software releases and heterogeneous environments among merging institutions, Marenzi said.

Novadigm's product automates process change and configuration management so that when updates are made to client/server applications, they have to be done only once. Other software distribution tools include Microsoft Corp.'s Systems Management Server for Windows NT and Dolphin SDS/Open from Dolphin Software Systems, Inc. in Alton, Ontario.

BankBoston Corp., as the merged entity is called, used Novadigm's EDM before the BayBank merger. In late 1995, the bank replaced its IBM 4700-based terminal emulation system for bank tellers with an IBM OS/2-based system called BankPro from Argo Data Resources Corp. in Dallas, said Chris Rigby, manager of BankBoston's software distribution group.

As part of the merger, BayBank's 223 branches and 3,000 retail workstations across New England were ported to BankBoston's Argo environment. BankBoston also inherited BayBank's Cross-Sell Manager system, a software package from Berman Technologies Corp. in Charlottesville, Va., that lets banks link customer accounts and cross-sell products to them.

BankBoston benefited from Novadigm's package in several ways. First, the bank could use the software distribution system to port applications without affecting premerger operations at BankBoston and BayBank.

Postmerger, the bank uses EDM to react to business changes on the fly. For example, if the Dow Jones industrial average plummets 250 points on a Thursday, BankBoston can use EDM to immediately change its certificate of deposit rates, Rigby said.

BRIGHT SPOT

Like most bank mergers, Bank of Boston/BayBank had its share of technical snafus, including call-center glitches and problems with automated teller machine networks malfunctioning, Marenzi said. The success of the automated distribution system has been a bright spot.

"When we were first coming out of the gate [with the BayBank merger], we went to the [drawing] board many times with things that didn't work and didn't scale," Rigby said. With EDM, "we have a predictable system to roll out changes ... with a very high percentage of success." □

Airline routes arriving data to single terminal

CONTINUED FROM PAGE 39

information that previously was gathered from three separate terminals.

Operations Control staff typically use such data to decide aircraft routes and crew schedules and warn pilots of expected delays or rough weather. With information collected in one place, United officials said, they expect to finish tasks quicker and with more precision.

"We are able to perform our jobs more efficiently than ever before because data is available quickly and in a format that is easy to understand," said Ron Smith, manager of flight dispatch at United.

United officials wouldn't say how much the airline spent to implement the new technology from Hewlett-Packard Co. But they said they hope to save at least $50 million per year in fuel and delay-related costs as a result of the integrated environment.

Such moves are typical of ongoing efforts by airlines to inject new technologies into their operations while retaining sizable investments in mission-critical — but often outdated — legacy equipment, said Barbara Beyer, president of Avmark, Inc., an aviation consulting firm in Arlington, Va.

"Airlines use state-of-the-art equipment when it comes to their aircraft, but they are several decades back" when embracing new technologies for some of their operations-related work, Beyer said. In addition to fuel and delay-related costs, she estimated that United also will save money through improved flight planning and tracking capabilities offered by the new systems.

United's Operations Control Center is a 24-hour facility situated at the company's headquarters in Chicago. The center handles flight planning, aircraft routing, crew scheduling and cancellations for United's 2,300 daily flights to 136 destinations in 30 countries.

The staff depends on a never-ending stream of information that flows in from nine different sources. That includes weather reports from its own meteorological staff, flight and radar information from the Federal Aviation Administration and the Air Transport Association, and reports from United ground crews at various airports around the country.

Most of the data goes directly into the company's IBM mainframes, from where it used to be accessed via proprietary terminal emulation software from multiple locations. United now uses the same software to access the information on new Unix workstations, while adding new tools to synchronize and integrate its multisourced information.

For example, United uses software from Sonalyst, Inc., a Department of Defense contractor in Waterford, Conn., to overlay weather maps on radar images. Sonalyst's WXstation software — originally used to track submarines — gives United's flight dispatchers highly detailed views of weather patterns on an aircraft's route. □

Foreign IS pros find a home in the heartland of America

CONTINUED FROM PAGE 39

From there, he went to La Farge Corp. in Montreal for several months before he was transferred to a Chicago Stock Exchange data center in Indianapolis for a three-month stint. For the past two years and three months — his longest assignment yet — he has lived in St. Louis with his family physician wife and his 18-month-old daughter while working at Blue Cross/Blue Shield of Missouri.

"The main reason I joined Mastech is I'm new to this country and I want to see new places," Parameswaran said. "I've been getting offers from companies for full-time employment, but I'd rather be with Mastech so I can go to different cities. I'm ready to travel anywhere."

The money also is excellent, Parameswaran said. His status as a foreign national hasn't impeded his earning a market rate — and more — for his work. He declined to specify his income, but said, "Earning the prevailing rate is not at all a concern."

MAKING ADJUSTMENTS

The same is true for 28-year-old Danesh Shah, also married and from India.

Shah was a client/server developer at Citicorp Software Ltd., a Mumbai-based subsidiary of the U.S. banking giant, when he read about Mastech in an Indian computer trade magazine.

He joined the company in 1993 and now works and lives in Houston with his Indian wife.

"It is fun to move," Shah said. But there also are adjustments that must be made, even in moving from one U.S. city to another, he said.

In Miami, for example, "it was too casual. You were allowed to wear shorts in the office," Shah said. "But in Houston, everyone wears a suit and tie every day, despite the 100-degree temperature."

Shah said he has observed that, in general, American IS professionals "want to keep their work and home lives totally different. They live two different lives — one from eight to five and then another one from five to eight, which is a little bit strange for us," he said.

In India, by contrast, "if you work together a long time, you don't just remain colleagues; you become real good friends. But that doesn't happen here," he said. □

Utility

CONTINUED FROM PAGE 39

should put some initial data analysis capabilities in the hands of MEAG Power's executives and business analysts by early next year, Miller said. Being able to better track things such as profits across different divisions is becoming crucial as deregulation brings a new era of increased competition to the utility business.

But MEAG Power doesn't want to throw together stovepipe data marts that keep users from running queries across the enterprise. And the unknowns of deregulation make any data mart "disposable," said Rob Gaylord, the data warehouse architect at the utility.

STELLA JOHNSON

MEAG's Meri Lea Miller: "We have to be able to change [data marts] on the fly"

"We've got to have an infrastructure that can support rapid changes, because six months from now everything could be different," Gaylord said. "We don't want to rebuild the sucker every time we need to add something."

Other companies wrestling with warehousing projects also are building so-called virtual data marts that share a single database and can grow incrementally into a full-fledged data warehouse [CW, Aug. 4].

Kevin Strange, an analyst at Gartner Group, Inc. in Stamford, Conn., said building a data warehouse in stages can help information systems departments balance demands for fast access to decision-support data with the need to lay down a solid enterprise foundation.

MEAG Power has six financial analysts who use a small pilot data mart that was built with Microsoft Corp.'s SQL Server database and New York-based Information Builders, Inc.'s SmartMart tools. Miller and Gaylord said they are putting together an action plan for the full warehousing project, which should be ready for review by the project board this fall.

The data warehouse is expected to require a seven-digit investment over the next three years and could grow to the terabyte range, Miller said. But deregulation makes it hard to pin down the exact project scope. □

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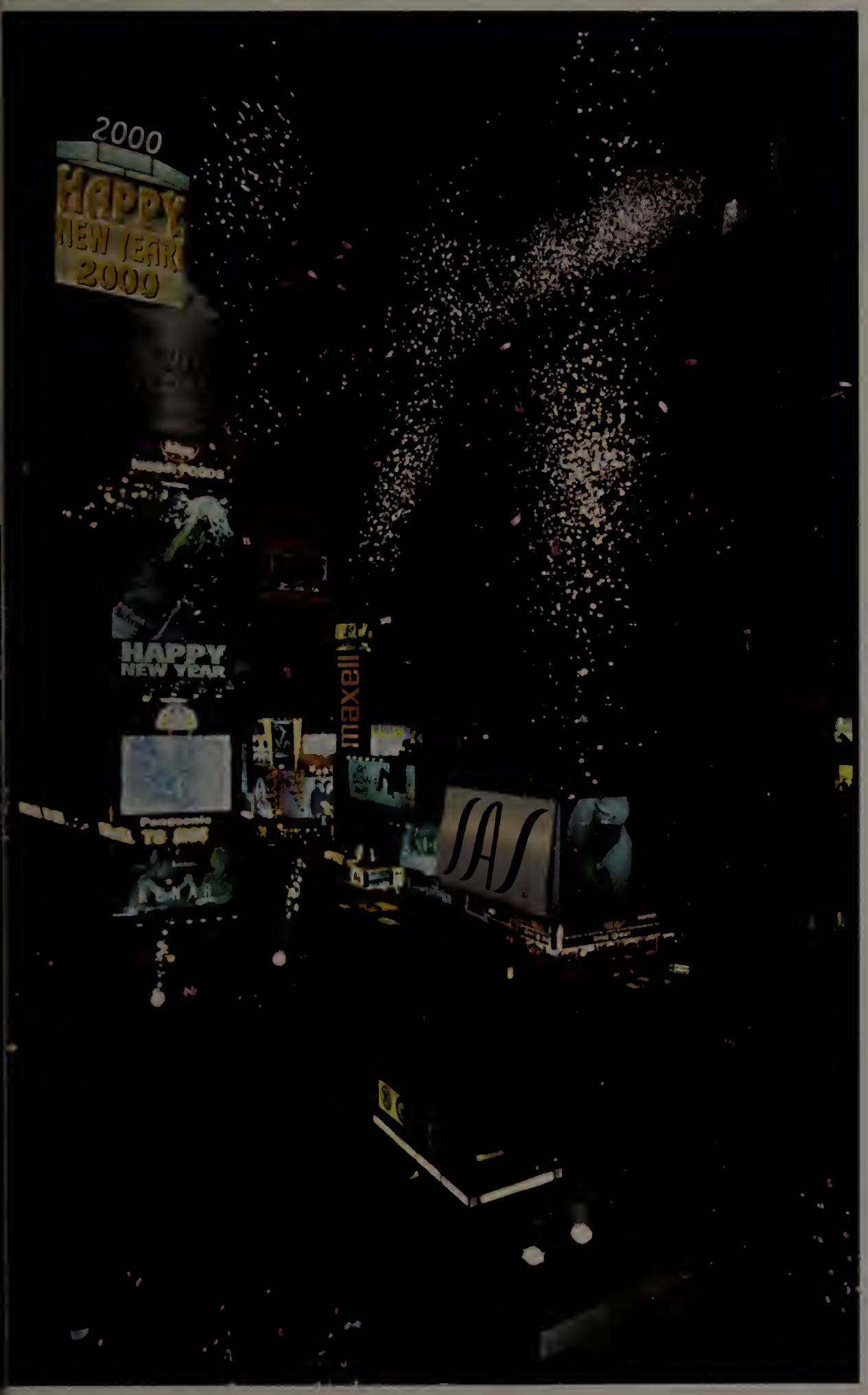

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Briefs

How will the Internet impact directories?

- The Internet will exacerbate directory problems
- The Internet will have no impact
- Internet standards will ease directory problems
- Don't know

Base: IS professionals in 50 Fortune 1,000 companies

Source: Forrester Research, Inc., Cambridge, Mass.

Auto-routing

The Electric Mail Co. in Vancouver, British Columbia, announced an Internet mail addressing service called AKA. AKA lets administrators create multiple Internet electronic-mail aliases that are automatically routed to existing E-mail addresses. With the service, a company could create a generic E-mail address for use on its World Wide that is sent to that address forwarded to other addresses. Electric Mail will charge about $25 per month.

SET-ting standards

Entrust Technologies Ltd. in Richardson, Texas, added support for an emerging electronic commerce standard to its Entrust/Manager key-management software. The Secure Electronic Transaction (SET) extension to Entrust/Manager allows major organizations such as banks and retailers to become SET certificate authorities and issue digital authentication certificates to consumers and merchants. SET is being promoted by major retail, technology and credit companies, including Visa International, Inc.

Bank uses Java to move online

▸ *First Tennessee answers call for services on the 'net*

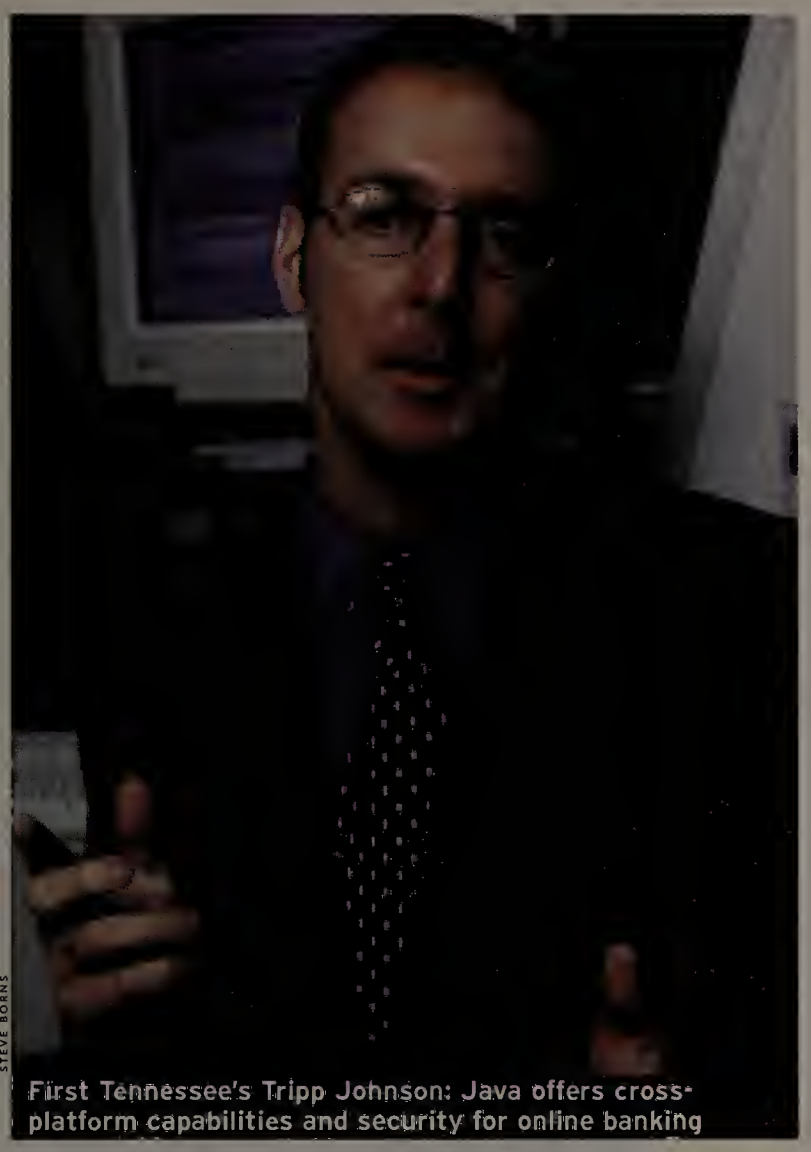
By Sharon Gaudin
MEMPHIS

FIRST TENNESSEE National Corp. uses Java to connect with its customers over the Internet.

The bank, which has $13.4 billion in assets and is the 50th largest bank in the country, is about to offer its customers an online automated teller machine (ATM), check registration, bill paying and financial advisory services online.

Java offers developers at the bank the cross-platform capabilities and the security needed to do the job, said Tripp Johnson, manager of new technologies at First Tennessee. Johnson said using Java to build applications means he worries only about the quality of the applications, not about what customers run on their desktops.

Because customers soon are going to expect their bank to have services available over the Internet, Johnson said he wants to get First Tennessee out ahead of the curve — another reason to pick Java. "For our Internet bank, we need to work with different back-end protocols, and that's not a big issue with Java," he said.



STEVE BORNS

First Tennessee's Tripp Johnson: Java offers cross-platform capabilities and security for online banking

Many financial institutions will follow First Tennessee onto the Internet, said Bob Landry, director of retail banking advisory services at The Tower Group in Newton, Mass.

Few banks are online now, but early adopters such as Wells Fargo Bank are charting the territory, and financial services giant NationsBank Corp. will be online by the end of the year, he said.

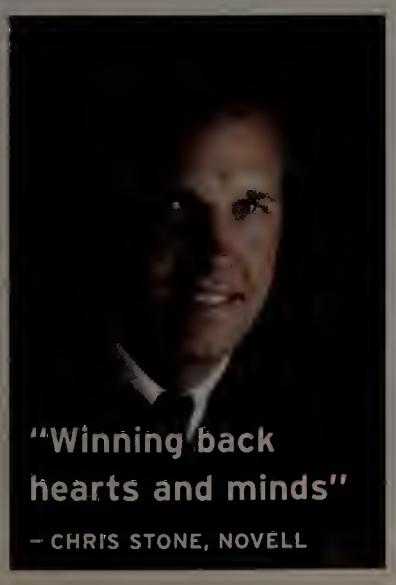
"Innovators who promote this kind of move aggressively will get the most mind share, and market share comes with that," Landry said. "This is the kind of move that will attract higher-quality customers away from other banks."

The two-tier applications are built entirely in Java, using passwords and Java's built-in "sandbox" restrictions for security, but they can increase security by delivering information

Java, page 47

'Does this make us any money?'

Chris Stone, former president and CEO of Object Management Group, last week officially became Novell, Inc.'s senior vice president of corporate strategy and business development, with the goal of vaulting the company into the strata of the major Internet/intranet players. Computerworld *senior editor Carol Sliwa recently caught up with him to discuss those plans.*



CW: What's your mission in the new job?

STONE: I view it as a classic turnaround opportunity. Really smart people. Great product. [A company] that really needs some strategic direction in technology, products, partnerships and relationships.

The issue [has been] getting strategic focus inside the company and then expanding that so that people outside the company can actually understand what Novell wants to do.

CW: Do you have a sense of what customers want from Novell?

STONE: I think most of the customers are happy with the products. What they're con-

Stone, page 46

• At engineering services firm...

Intranet offers access

By Sharon Machlis

GALAXY'S INTRANET BENEFITS

- Efficient electronic time card system
- Easier project collaboration
- Cheaper long-distance phone bills

ELECTRONIC TIME cards don't do much for efficiency if the cards are printed in branch offices and then mailed or faxed to IS headquarters, where the data is rekeyed by hand.

But that's what Galaxy Scientific Corp., an engineering services company in Egg Harbor Township, N.J., did. Its network had no remote access for the time sheet system and offered only slow dial-up connections for other purposes among offices across the U.S.

Other problems: Electronic mail was often several hours behind, and the company sent a lot of its important correspondence on paper by next-day mail.

"If you needed information, you called somebody," recalled Glenn Botkin, systems engineer and intranet project manager at the company. "About a year ago, our CEO decided he wanted an intranet. . . . We needed to connect our offices."

With security a major concern, doing the project in-house would have meant installing

Intranet, page 47

Stone: 'Does this make us any money?'

CONTINUED FROM PAGE 45

cerned about is that they bet their careers on Novell. They need to be comfortable that Novell is in it for the long term, and right now, many of them aren't. That's probably the toughest job right now: winning back the hearts and minds of these kinds of people.

CW: How important is Java going to be in Novell's overall strategy?

STONE: I've thought that Java and distributed object computing and the notion of a network, rather than an operating system, is Novell's future and that Novell was in essence waiting for something like that to happen to it. It just didn't know it.

Java is probably the most important execution environment for us. We will build the future of our services all using Java APIs and Java execution. But the really interesting applications and services for Novell are on the server. We really don't care what the front end is. What we do have to figure out is how those appliances configure into a network.

"He who owns the infrastructure will make money."

– Chris Stone, Novell

We will provide a set of core services that should be available to any given network, then we will expand on that. We've got to find five or six really neat services that we can make a lot of money on.

CW: Can you give some examples?

STONE: There's a set of core services that you have to have: security, data replication, a directory service — which is what Novell is really good at — and then the more mundane things like print and file, systems administration. Those aren't something we're going to make a whole lot of money on.

[Moneymakers] may be very domain-specific: an application for a patient index system for the entire hospital network that allows any physician to look up a medical record history or link into a prescription drug program. Today, what's the model? It's all on paper.

CW: Will Novell actually write and sell these applications?

STONE: It's the make/buy decision. I think most of them we'll probably partner — either buy or license or something like that.

My mantra is: Does this make us any money?

CW: If you partner with somebody, you aren't going to make a lot of money off the applications. But the whole idea is to make people want to use Novell products because it offers these services.

STONE: He who owns the infrastructure will make money. If you own the infrastructure, you have an enormous impact on all the infrastructure people will require and build things on top of it.

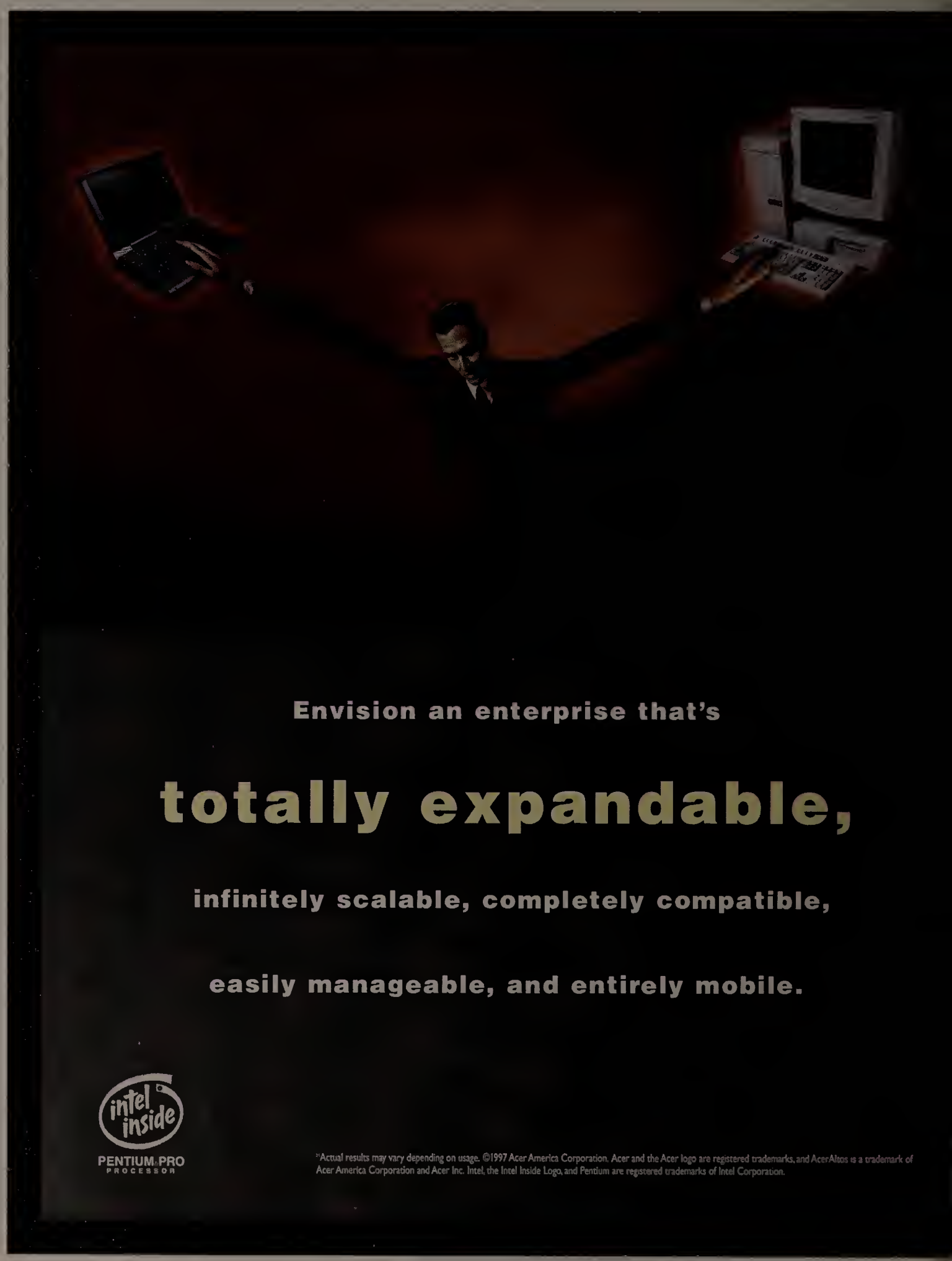
We have that. Three years ago, four years ago, Novell had that model. But they couldn't figure out how to do it for the network, the Internet in general.

CW: Whom do you consider your chief competition in this regard?

STONE: Certainly Microsoft. And to be quite honest, the competition in this regard right now are all the [small] independent companies.

CW: List three goals to achieve by the end of the year.

STONE: Turn Novell into a intranet/Internet provider. Continue to roll out products on a very timely basis. And, in our message, a consistent single strategy that everybody sings, everybody can explain and commit to. □



Intranet

CONTINUED FROM PAGE 45

high-end firewall software at each of eight locations, at an estimated $20,000 each, according to Botkin. Also, there would be the staff demands of "continuous maintenance and management," he said.

Instead, Galaxy ended up outsourcing the plan, using service provider PSINet, Inc. in Herndon, Va., to develop a system based on Internet protocols that, besides connecting six major offices and two branch offices, would also allow remote access by employees and extranet features for key customers and partners. For now, remote users connect by dial-up, although the company is working to enable access via the Internet.

The new setup lets senior engineer Dick Saboda, who typically spends two weeks each month on the road, access the entire office network instead of simply E-mail messages. Instead of doing time sheet and expense reports when he returns to the office, "I do them while I'm in the hotel, with my feet propped up and my shoes off," Saboda said. "That's double productivity."

He also has been able to download software patches to fix customer problems while conducting in-field systems training instead of having disks sent by Federal Express Corp.

Botkin calls the setup a full-service intranet, although he said other buzzwords such as WAN, virtual LAN and extranet could also apply. Communications among offices go over PSINet's Internet circuits, isolated from the rest of the public Internet by filters, routers, firewalls and other security measures.

Galaxy controls access using network permission policies, Botkin explained. The server assigns each log-in a certain allowable IP range, so users are granted access only to the portion of the network they are supposed to see. "It appears to keep pretty tight rein on things," he said.

International Data Corp. in Framingham, Mass., predicted there will be 4.7 million intranets by 2000.

More companies are turning to outsourcing to develop such network services in part because they "don't have the skills and resources to keep up with the rapidly changing technology," said Dan Merriman, an analyst at Giga Information Group in Cambridge, Mass. "Their own internal network staff is overwhelmed." The potential drawback: losing control of and flexibility in their information systems management.

At Galaxy, the Internet-based network saves time and money, Botkin said. Time sheets for about 300 employees can be sent electronically to headquarters, where the data is incorporated in an integrated financial system, eliminating the need for staff to key in data manually.

"Our E-mail has improved many-fold" from the hours-long backlog before, Botkin said. The company has saved on several hours of daily long-distance telephone calls for dial-up data exchange, or about $3,000 to $4,000 per month.

The network has also helped people collaborate better on projects. One large proposal in the works, involving personnel in three locations, uses Internet-based communications to draw up the plans. "The stuff is flying back and forth," Botkin said. "It enhanced the quality of what they're putting together. . . . And they're way ahead of their deadline." □

Java

CONTINUED FROM PAGE 45

applets rather than text files. The online ATM application, for example, will receive a request for a customer's account balance, then retrieve that information from a database and ship it to the customer as an applet. The customer never gets a direct view of the account information, reducing the chance of a hacker intercepting or changing it.

Johnson, who is responsible for both marketing and information systems for the online banking system, said part of the process was persuading his Fortran and Cobol developers to work in Java.

"It didn't get much initial excitement," he said. "You go talk to a bunch of Fortran and Cobolers about Java, and it takes a while." □

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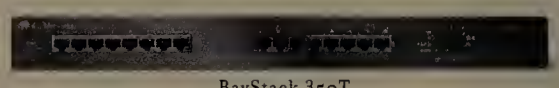
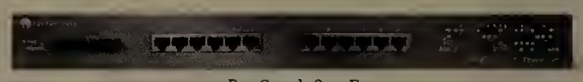


BayStack 350T



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*$249 per port – US list price for BayStack 350, as of August 1, 1997.

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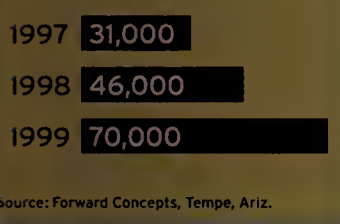
Briefs

H.320 is a standard for running videoconferences over ISDN lines

Projected unit shipments of desktop H.320-compliant video systems



Source: Forward Concepts, Tempe, Ariz.

NT burglar alarm

Security vendor Intrusion Detection, Inc. in New York recently released the Kane Security Monitor (KSM). It provides 24-hour protection against external and internal hackers. When KSM detects a potential threat to a Windows NT server, it automatically alerts the company's security personnel via electronic mail, fax, pager or audible alarm. A one-server, one-management console version will cost $1,495. A single-workstation version will cost $995. Special discount prices are available through next month.

NT replication

Network Integrity, Inc. in Marlboro, Mass., recently introduced its Real-Time Replicator for Windows NT, which provides automated backup and recovery for Windows NT networks. Real-Time Replicator copies only the data that has changed in real-time mode or changed/deleted file mode. It recovers from server interruptions or bandwidth loss without manual user intervention or having to recopy files. It costs $2,999 per Windows NT Server.

IDT guarantee

IDT Corp. in Hackensack, N.J., is offering a money-back guarantee on calls made over Net2Phone, a PC-to-phone technology. Software for Net2Phone is free and can be downloaded from *www.net2phone.com*. Users who download the software prepay for calls online, enter the telephone number they wish to call and are connected through the Internet to a desired location.

E-mail spec may boost reliability

▸ *Middleware initiative could improve BQM*

By Barb Cole-Gomolski

SUPPORTERS OF a vendor initiative to make electronic mail bulletproof plan to roll out a message-queuing specification at the Electronic Messaging Association's Solutions Summit later this month in San Jose, Calif.

Microsoft Corp. and IBM collaborated on the Business Quality Messaging (BQM) specification, which describes how message-queuing products should work. The two vendors, along with Intel Corp., launched the BQM initiative in April.

Some users said the BQM initiative may provide a way to improve the reliability of E-mail to the point that it is useful as a platform for message-enabled applications. Others are taking a wait-and-see attitude.

ADDED SUPPORT

The idea is that by using message-oriented middleware, users can improve the reliability of E-mail and link applications to their messaging networks. Such middleware products include IBM's MQWare and Microsoft's MSMQ, both designed to deliver messages between applications and guarantee their delivery.

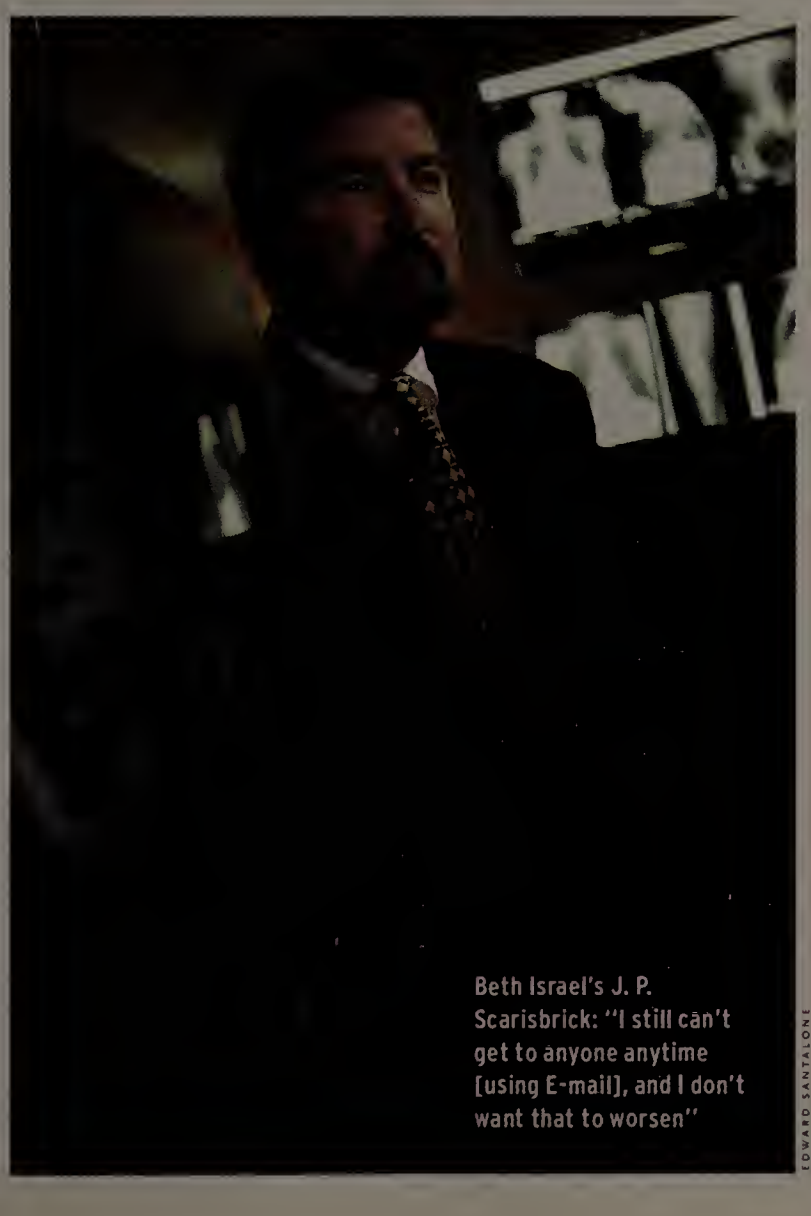
The vendors involved have been rallying corporate developers and makers of third-party messaging products to support BQM in their offerings.

If you believe the messaging backbone is central to the deployment of collaborative applications, you'll take a second look at BQM, said Greg Scott, information systems manager at the College of Business at Oregon State University in Corvallis.

BQM, page 57

BQM strengths	BQM weaknesses
▮ Improves the reliability of E-mail systems	▮ Few products are BQM-enabled
▮ Enables application-to-application communication	▮ Requires an additional investment in software
▮ Allows sites to deploy message-driven applications, such as workflow	▮ No common BQM API exists to let BQM products interoperate

Megarouters moving up the scale



Beth Israel's J. P. Scarisbrick: "I still can't get to anyone anytime [using E-mail], and I don't want that to worsen"

EDWARD SANTALONE

▸ *Service providers seek quicker access*

By Bob Wallace

SOME INTERNET service providers say they will need to implement megarouters to offer users reliable access to the Web for electronic-commerce applications.

Service providers are finding that some of their networking equipment can't scale to keep pace with skyrocketing demand for World Wide Web access. But the routers that some need aren't commercially available.

"The toughest problem we face is scalability," said Alan Taffel, vice president of business development at UUnet Technologies, Inc. in Fairfax, Va. UUnet's backbone network now runs at 622M bit/sec. "We need to run it at 2.5G bit/sec., but there aren't products out there now that can support that speed, and that's a massive problem."

Taffel said he would like to have megarouters in the UUnet backbone within a year, chiefly because the alternative — buy-

Service providers, page 57

Start-up eyes access via Internet

By Matt Hamblen

START-UP Aventail Corp. in Seattle has announced a new version of its Virtual Private Network (VPN) software, which was designed to allow systems managers to give remote workers, business partners and customers secure access to a network across the Internet.

VPN 2.5 adds support for Security Dynamics Technologies, Inc.'s SecureID password/token security system. It also adds the ability to build access controls based on group lists in Microsoft Corp.'s Windows NT. VPN 3.0, due by year's end, will add more support tools, including an application that eases remote connection to a database.

VPN adds the ability to build access controls based on group lists in NT.

MORE SOPHISTICATED

Aventail's products operate at what is known as the circuit-level proxy in the Internet Protocol stack, which gives the products a more sophisticated method for authentication than most other Internet-enabled security products, said Dan Merriman an analyst at Giga Information Group in Cambridge, Mass.

Merriman said the product could enhance the secure envi-

Start-up, page 57

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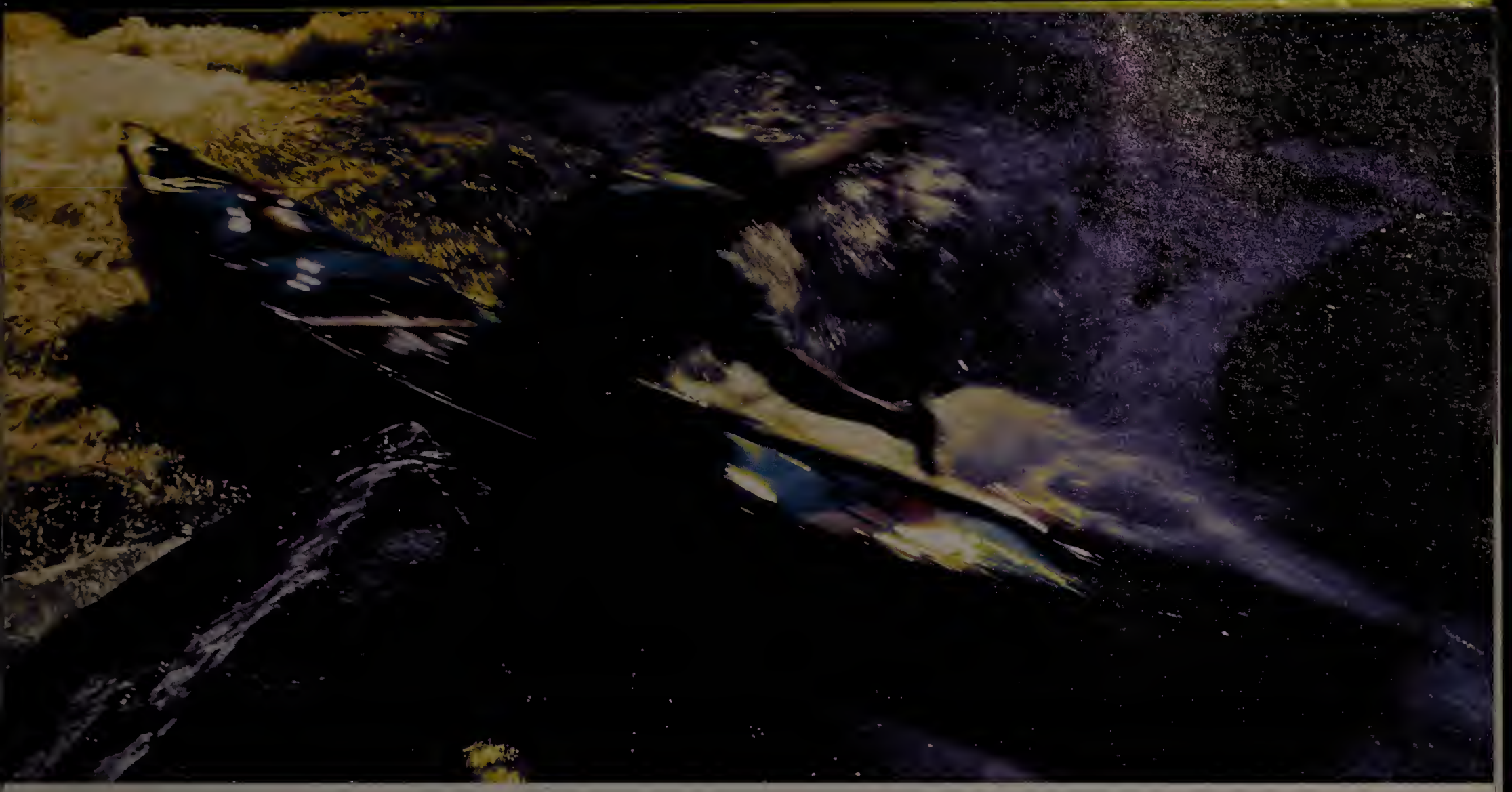

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AMERICAN TECHNOLOGY LABS, INC. has announced the ATM Edge Switch, a switch that combines legacy voice and data traffic with Asynchronous Transfer Mode traffic.

According to the Ijamsville, Md., company, the switch was designed for sites where concentration of private branch exchange, video conferencing or point-to-point data applications is needed without a complete system redesign. The hardware allows users to broadcast information to multiple sites via multiple communications links. It offers transmissions speeds up to 622M bit/sec.

Pricing starts at just under $20,000.

American Technology Labs
(800) 223-9758
www.atli.com

I/G OPENWARE, INC. has announced Direct-To-1, a utility that provides messaging migration from digital mail servers to Lotus Notes.

According to the West Chester, Pa., company, the software lets users move digital mail messages and other documents to Notes while retaining information, such as electronic-mail addresses, and message header attributes, such as confidentiality flags.

The single-unit price is $49.

I/G Openware
(610) 241-6000
www.iga.com

INTEGRIX, INC. has announced the SHA220, SHA400 and the SHA450 high-speed SCSI adapter cards for SPARC workstations and servers from Sun Microsystems, Inc.

According to the Newbury Park, Calif., company, the single-slot Sbus adapters provide SCSI and Ethernet I/O for desktop systems, tape backup, RAID, network and other peripheral devices. The SHA220 offers Fast and Wide SCSI-2 at 20M byte/sec. and 10/100M bit/sec. Fast Ethernet interfaces. The SHA400 is an Ultra Wide SCSI-2 single-ended adapter with throughput of 40M byte/sec. The SHA450 provides slightly improved transfer rates over the SHA400 for peripherals linked at greater distances.

The SHA220 costs $695, the SHA400 costs $495 and the SHA450 costs $550.

Integrix
(805) 376-1000
www.integrix.com

FORE SYSTEMS, INC. has announced two ForeRunner Synchronous Optical Network/SDH network modules for ForeRunner ASX-200BX and ASX-1000 ATM switches.

According to the Warrendale, Pa., company, the Asynchronous Transfer Mode (ATM) network modules provide ForeRunner ATM switches with a buffering capacity of 1 million cells per switch. The 155M and 622M bit/sec. modules also offer Explicit Rate Available Bit Rate hardware support, which lets source addresses analyze and adjust traffic volumes when congestion occurs.

Pricing for the modules starts at $3,995.

Fore Systems
(412) 742-4444
www.fore.com

MICRO COMPUTER SYSTEMS, INC. has announced Calypso Wireless, a Simple Mail Transfer Protocol (SMTP)-based wireless electronic-mail package.

According to the Irving, Texas, company, Calypso Wireless consists of a client that sends and receives E-mail over a wireless network and a gateway that runs as a Java application on the server. The gateway exchanges information with an SMTP or Post Office Protocol mail server and compresses the client-requested information into as few packets as possible before sending information back to the client.

The Calypso Wireless client costs $179.95. The gateway costs $4,995.

Micro Computer Systems
(972) 659-1624
www.mcsdallas.com

ABC SYSTEMS AND DEVELOPMENT LTD. has announced LAN Licenser 3, a metering application that detects unregistered software on a network.

According to the Andover, Mass., company, users can instruct the application to close inactive software, provide mobile user licensing and restrict access to applications based on criteria such as user name, machine or time. A Hypertext Markup Language user interface provides load-balancing capabilities and dynamic help.

LAN Licenser 3 costs $2,245 for 100 users.

ABC Systems and Development
(978) 470-3999
www.abcsystems.com

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- 22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services
- 23. Dir./Mgr. Sys. Development, System Architecture
- 31. Programming Management, Software Developers
- 41. Engineering, Scientific, R&D, Tech. Management
- 60. Sys. Integrators/VARs/Consulting Management

CORPORATE MANAGEMENT
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- 12. Vice President, Asst. Vice President
- 13. Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
- 51. Sales & Mktg. Management
- 70. Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT
- 80. Information Centers/Libraries, Educators, Journalists, Students
- 90. Other Titled Personnel

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- (b) Netware (f) Windows NT
- (c) OS/2 (g) Windows
- (d) Unix (h) NeXTstep

App. Development Products ❒ Yes ❒ No
Networking Products ❒ Yes ❒ No
Intranet Products ❒ Yes ❒ No

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- 85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
- 90. Computer/Peripheral Dealer/Dist./ Retailer
- 95. Other_____ (Please Specify)

2. TITLE/FUNCTION (Circle one)

IS/MIS/DP MANAGEMENT
- 19. Chief Information Officer/Vice President/Asst. VP IS/MIS/DP Management
- 21. Dir./Mgr. MIS Services, Information Center
- 22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services
- 23. Dir./Mgr. Sys. Development, System Architecture
- 31. Programming Management, Software Developers
- 41. Engineering, Scientific, R&D, Tech. Management
- 60. Sys. Integrators/VARs/Consulting Management

CORPORATE MANAGEMENT
- 11. President, Owner/Partner, General Mgr.
- 12. Vice President, Asst. Vice President
- 13. Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
- 51. Sales & Mktg. Management
- 70. Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT
- 80. Information Centers/Libraries, Educators, Journalists, Students
- 90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)

Operating Systems
- (a) Solaris (e) Mac OS
- (b) Netware (f) Windows NT
- (c) OS/2 (g) Windows
- (d) Unix (h) NeXTstep

App. Development Products ❒ Yes ❒ No
Networking Products ❒ Yes ❒ No
Intranet Products ❒ Yes ❒ No

4. Which of the following products do you buy, specify, recommend or approve the purchase of? (Check all that apply.)
- (a) ❒ Internet software
- (b) ❒ Internet browsers
- (c) ❒ Web authoring/development tools

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BQM spec to boost mail reliability

CONTINUED FROM PAGE 49

"BQM-enabled products will help IT deploy a range of value-added services, such as distance-learning applications in our case," Scott said. Oregon State is deploying Microsoft Exchange across the Corvallis campus.

Eric Arnum, editor of the "Electronic Mail and Messaging Systems" newsletter in Washington, said the growing reliance on Internet mail will drive the need for BQM-enabled products.

"Internet mail is like putting cash in the mail," Arnum said. "It may get through or get lost, and you can't prove it either way." BQM can add the reliability many sites are looking for, he said.

Many users said BQM is a good idea, but some questioned whether it is merely an attempt by the vendors involved to sell more software. Jerry Johnson, a senior policy analyst for the state of Texas, said he is waiting for the companies involved to improve the interoperability of their respective message queuing products before he will consider BQM seriously.

"At this point, it's a where's-the-beef kind of thing," Johnson said.

Ken Shand, business manager of messaging at Intel, said the long-term goal is to build an application program interface that would allow interoperability between message-oriented middleware and BQM-enabled products from disparate vendors.

One messaging manager at a large petroleum company said BQM could be used to tie together back-office applications or as an alternative to electronic data interchange applications when collaborating with trading partners. But she said she is concerned that BQM will result in a central hub from which all applications are routed, creating a network traffic jam. □

Service providers seek quicker access

CONTINUED FROM PAGE 49

ing many smaller systems — is expensive, and higher costs would be passed to users.

One user said he already is concerned about reliability and performance of service provider nets.

"I still can't get to anyone anytime [using E-mail], and I don't want that to worsen," said J. P. Scarisbrick, director of network access services at Beth Israel Medical Center in New York. "It could get serious if [service providers] don't take this matter seriously." Scarisbrick plans to attend a gigabit router seminar to learn more about issues surrounding the products and their capabilities.

"This becomes a key issue as more and more users depend on the Web for things like electronic commerce," said Rob McKenna, vice president of global network engineering at Sumitomo Bank Capital Markets, Inc. in New York. "We don't rely on the 'net too much. Therefore, the impact on us would be minimal."

TO THE RESCUE

Help is on the way, but no one is sure when it will arrive. Cisco Systems, Inc. is working on a system called the Gigabit Switch Router, which is in beta testing. Start-up Juniper Networks is said to be building something similar, but the company is tight-lipped about the project. Other small start-ups are in the mix. Ascend Communications, Inc. also is working on high-end router technology.

Taffel wants megarouters in the UUnet network by next fall.

"If they don't appear in time, we won't be able to stay in front of the growth curve, and that will lead to [network] congestion," Taffel said. "That's why we're backing multiple horses. We buy big from Cisco and Ascend and just took an equity stake in Juniper." □

Management products

▶ *Tivoli modules support MCIS and SuiteSpot*

By Clare Haney
HONG KONG

IBM'S SYSTEMS management subsidiary, Tivoli Systems, Inc., has announced the general availability of two application management modules — one to help manage Microsoft Corp.'s Commercial Internet System (MCIS) and the other to handle Netscape Communications Corp.'s SuiteSpot family of servers.

The company made the announcement at its Planet Tivoli conference for the Asia-Pacific region held in Singapore.

The addition of Tivoli Management Environment (TME 10) modules for MCIS and SuiteSpot brings the number of available TME 10 applications management modules to 16 or 17, said Martin Neath, senior vice president of Tivoli's product group.

"Our goal is to have 30 to 40 applications management modules by the end of this year," Neath said in an interview. "We aim to cover all high-volume commercial applications."

Tivoli already is shipping modules to manage products such as SAP AG's R/3 high-end applications suite, IBM's message-oriented middleware MQSeries and the major relational databases. But Neath said Tivoli is working on modules to handle Microsoft's Exchange messaging software and high-end application suites from The Baan Co. and PeopleSoft, Inc. □

Haney writes for the IDG News Service in Hong Kong.

ISDN users dial up German video phone

By Margret Johnston
BERLIN

DEUTSCHE TELEKOM AG is taking orders from its ISDN customers for a video telephone with a 5.5-in. screen that will be available in mid-November.

The German telecommunications company previewed the device, called T-View, last week at IFA, the international broadcasters exhibition. Deutsche Telekom claimed the device is as easy to operate as a regular telephone and an improvement over PC-based offerings in the area of video communications.

VIDEO COMMUNICATIONS

The T-View phone looks similar to a regular Integrated Services Digital Network (ISDN) desk phone but has a color LCD screen and miniature camera attached across the top by a hinge.

The software supports the International Telecommunication Union's H.323 specification for transmitting audio, video and data over TCP/IP, Ethernet LANs and the Internet.

The 64K bit/sec. video transmission rate results in images that are slightly delayed and choppy; some nuances in expression and gestures aren't picked up. The image quality can be somewhat optimized by using both ISDN channels, but that increases the cost of the call, Deutsche Telekom officials said.

Demand for ISDN service is growing — about 20% since January to 6.3 million ISDN channels in operation, according to Deutsche Telekom. More than half the company's ISDN customers are private households, company officials said.

The introductory price of the T-View phone is about $550 for one unit, but Deutsche Telekom officials said that price would go up by about 25% from January. The phones also can be rented.

ALSO ON VIEW

Other products and services displayed and demonstrated at IFA include the following:

■Oracle Corp. in Redwood Shores, Calif., and the German all-news broadcaster N-TV announced availability of a service called Business Information on Demand, aimed at corporations with specific video needs. The service provides production and satellite transmission of video from locations around the world to Oracle video servers at the company's offices.

■Sharp Electronics Corp. in Mahwah, N.J., displayed a stereo system with Internet access capability. The MD-X8H system lets users hook up their PC to their stereo, tune in to Internet audio programs and record them on the system's mini-disk recorder. The MD-X8H will be available in Germany later this month. □

Johnston writes for the IDG News Service in Munich.

Start-up eyes access via 'net

CONTINUED FROM PAGE 49

ronment for electronic commerce at large enterprises that need to give remote users access to traffic on their LAN.

Merriman said the future of VPN as a technology isn't guaranteed, and neither is Aventail's role. "It's a small, emerging company and we're just waiting for a critical mass of users," he said.

Pricing for VPN 2.5 starts at $7,995 for 25 server connections, or approximately 12 users. □

SHORTS

HP cuts prices

Hewlett-Packard Co. last week announced price cuts as high as 30% on its HP AdvanceStack 10Base-T Hub 16U and HP AdvanceStack Switch 800T. The AdvanceStack 10Base-T Hub 16U is a 16-port hub that comes bundled with HP's AdvanceStack Assistant network management software for $419. The AdvanceStack Switch 800T is a Layer 3 switch with eight 10/100 Base-T autosensing ports. It costs $2,199.

Cisco acquisition

Cisco Systems, Inc. completed the acquisition of Integrated Network Corp.'s Dagaz Technologies, Inc. subsidiary in Boston. In the $124.5 million deal, Cisco acquired the company's XDSL products and intellectual property, personnel and other XDSL-related assets.

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Software

Databases • Development • Operating Systems

Briefs

Oracle DSS hits Unix

Oracle Corp. last week added initial Unix support to a World Wide Web-enabled version of its Express Server multidimensional database, 10 months after the decision-support system became available on Windows NT. Express Server 6.1 now is being released on Sun Microsystems, Inc.'s hardware. Oracle officials said more Unix platforms will be added later this year. The Sun boxes cost $3,995 per concurrent user.

New OLAP tool

PSDI, Inc. is adding online analytical processing (OLAP) to its flagship Maximo maintenance management software. Maximo Analyzer, the new OLAP tool, will let users more closely scrutinize their operations, such as comparing downtimes at plants in a specific region or finding patterns that explain why plants are down. The software will ship this month.

SAP for aerospace

SAP AG last week launched a version of R/3 designed specifically for the aerospace and defense industries. Industry-specific functions added to R/3 include cross-contract planning and pegging, cost reimbursement and progress billing. It meets government requirements for Materials Management and Accounting Systems Standards and federal acquisition regulations.

PAYING TO PLAY

IS managers expect to spend **$303** billion on services in 2002, up from today's **$149** billion. **46%** will be for help setting up distributed applications and networks; **31%** will be spent on mainframe-related services; and **11%** will go to Internet projects.

Source: Forrester Research, Inc., Cambridge, Mass.

R/3 users fear losing integration

▸ *SAP struggles to break R/3 into components*

By Randy Weston

USERS SAID THEY will pass up a more flexible architecture planned for SAP AG's R/3 if it means losing the core integration that made the business process automation system attractive in the first place.

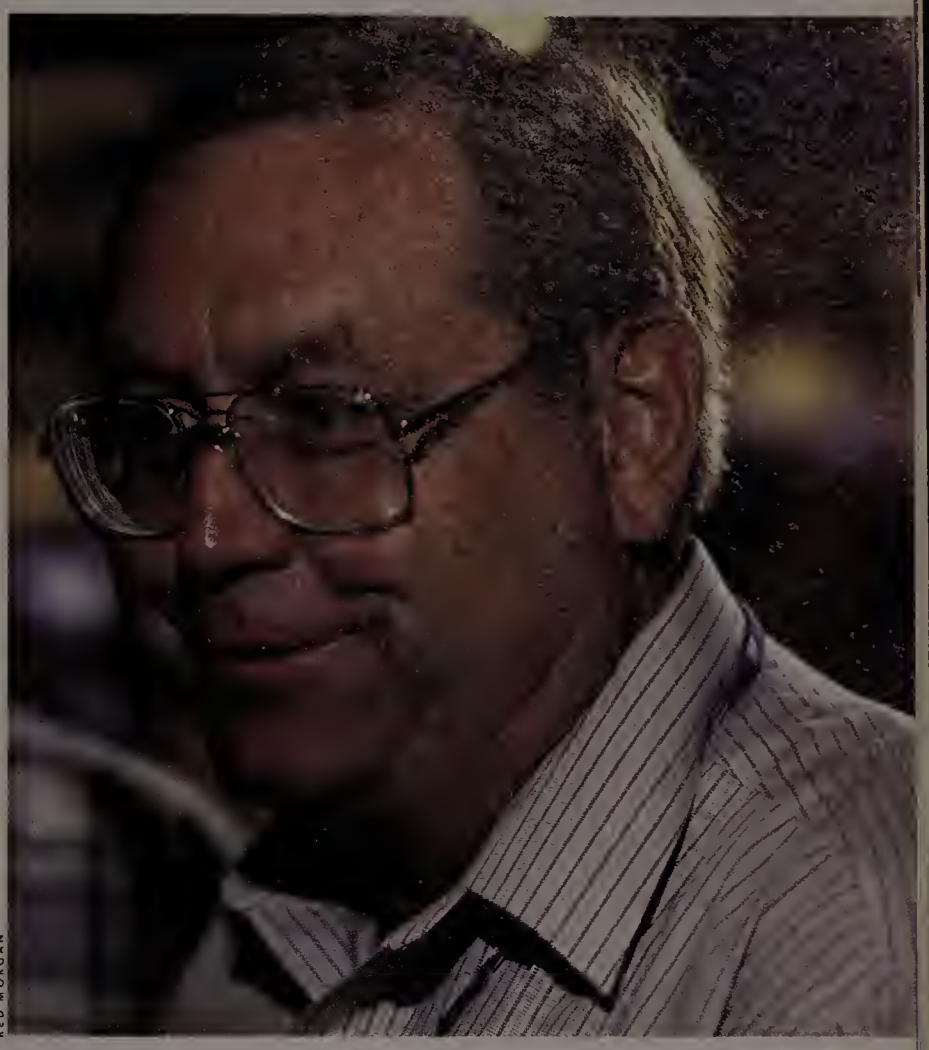
At its recent user group conference, SAP unveiled details of R/3 4.0, due for release by year's end. Unlike previous additions to the R/3 roster, the new functions won't be integrated into the core applications, but rather sold as components that can be upgraded and installed independent from the rest of R/3.

R/3 until now has been sold as a tightly integrated package of human resources, financial and manufacturing modules, a selling point that won over many Fortune 500 companies.

"SAP's success in the market is clearly an indication that users have voted for integration," said Clare Gillan, an analyst at International Data Corp. in Framingham, Mass. "IT people realize there is a trade-off of easy installation for better business value."

At last year's user conference, SAP officials announced that R/3 would be broken up into components, starting with the human resources module in Version 4.0. Any new functions would be brought into the R/3 fold as components (see chart, page 62).

R/3 users, page 62



FRED MORGAN

Deere & Co.'s Bob Towner: "When you have large volumes of transactions like we do, you need to preserve integration"

Audio/data conferencing becomes affordable

By Matt Hamblen

COMPANIES ITCHING to use the Internet for staff conferences clearly see potential benefits: remote training sessions don't need travel budgets, and collaborative sessions could come together quickly.

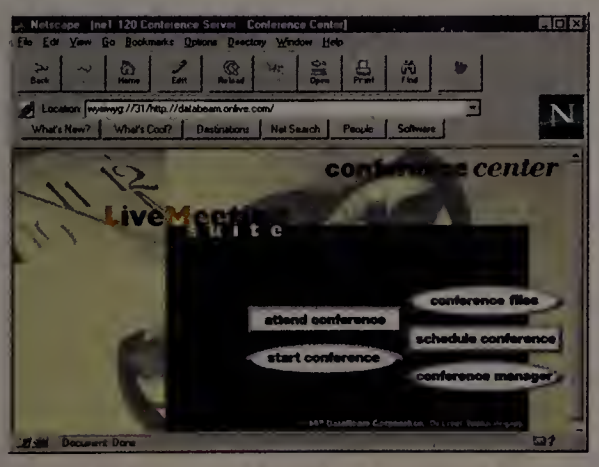
That's the theory.

But existing PC-based technology can be too expensive or cumbersome.

According to analysts, any workable solutions for audio conferences and real-time data sharing can cost companies hundreds of thousands of dollars to set up and administer with dedicated networks. OnLive Technologies, Inc. in Sunnyvale, Calif., has released LiveMeeting Suite and its Audio Conference Server, software products that users said make audio and data conferencing affordable for conferences of up to 225 people — with telephone-quality sound.

LiveMeeting Suite is server software that integrates live

Audio, page 65



OnLive Technologies' LiveMeeting Suite integrates live voice with data conferences

Secrets to SAP success

▸ *Experienced users give newbies tips*

By Johanna Ambrosio
ORLANDO, FLA.

PEOPLE WHO came to the recent SAP user group meeting to get advice weren't disappointed.

Whether seated at presentations and seminars or huddled in informal hallway chats and off-the-cuff conversations, customers who have successfully implemented the SAP suite were happy to pass along tips to those who are just beginning the journey.

The hints carried common themes: securing high-level executive support and end-user buy-in; building an implementation team that features the best and brightest information technology people; and sparking an organizational revamp that can support new business goals.

The most daunting problems with SAP implementations "have nothing to do with technology," said keynote speaker Dr. Michael Hammer, president of consultancy Hammer & Co. "You can get all the technical issues right, and you will still die," said the Cambridge, Mass.-based Hammer.

A Hammer survey of SAP users found that the biggest problems included a lack of widespread readiness to adopt SAP R/3, which is a suite of financial and manufacturing software applications that requires virtually all business processes to be changed.

If that work hasn't taken place, and if all parts of the business aren't open to changing their processes, it is impossible to successfully implement R/3, the survey found.

AN ABSOLUTE MUST

Another essential ingredient is executive leadership — top guns who are ready and willing to lead the charge to examine and change as many processes as needed, Hammer said. "The No. 1 error [in SAP installations] is failure to invest adequately in

Experienced users, page 62

Compaq registered U.S

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COMPAQ

Corel, Lotus heat up Java battle

▸ *Competition from Lotus' Kona forces Corel to rework Office for Java*

By Gordon Mah Ung

COREL CORP.'S announcement last month that it would put its Office for Java on a diet, change the name of the product and refocus its approach to entering the enterprise was the result of a harsh reality check, analysts said.

The Ottawa-based company was the first major developer to release a beta version of a productivity suite. But its popular WordPerfect Suite in Java was considered too "chubby" for the thin-client market and too slow overall. Instead, Corel said it would develop products based on groupware, electronic mail and multiuser system software [CW, Aug. 25].

BATTLE STATIONS

Corel's shift sets up a Java-based battle next year with Lotus Development Corp. in Cambridge, Mass. Lotus has been developing a suite of Java-based productivity applets, code-named Kona, to be aimed initially at companies that have text-only terminals and are considering moving to network computers.

Kona will add functionality, such as basic word processing, presentation graphics and spreadsheets, to "green screen" text-based terminals. Lotus will target power users with its SmartSuite office product.

Analysts said the competitive pressure Lotus put on Corel's Java-based efforts forced a strategic change.

Lotus' development of Kona "is one of the main reasons Corel backed off" its release of a Java-based Office suite, said Evan Quinn, an analyst at International Data Corp. in Mountain View, Calif. "I think they decided they didn't want to go into general release with a product they didn't want to support."

Corel "could have looked at the other office suites and decided they weren't competitive," said Amy Wohl, editor of industry newsletter "TrendsLetter" in Narberth, Pa.

NEW STRATEGY

Corel's enterprise strategy is to offer its Remagen technology, which lets multiple users access copies of the WordPerfect Suite or other Windows applications from a server through a Java-enabled browser or thin client, and continue to develop its Office suite.

Corel also hopes to use the Java expertise gained in the aborted Office for Java in an upcoming product code-named Alta.

Much like Kona, Alta will offer a browser user interface that combines E-mail, information management and productivity applications on a clean desktop. Alta is scheduled to be released next spring or summer and will contain 70% of the code written for Office for Java, Corel officials said.

Quinn said Corel's early exuberance for Java was also good for the then-nascent Java world. "Even though this won't work for them, there's a lot of people who jumped into the [Java] ring because a major player like Corel was willing to do it," Quinn said. □

R/3 users fear losing integration

CONTINUED FROM PAGE 59

But SAP officials said breaking apart the financial and logistics pieces of R/3 is proving difficult. And they are heeding users' calls to retain integration.

SAP PROMISES

Officials at the German company, which has U.S. headquarters in Wayne, Pa., insisted that tight coupling won't be lost in the breakup of R/3. "The directive from users is you have to keep integration," said Udo Edelmann, director of release strategy at SAP. "This is the core value we supply, and we have to keep the bar high. We will maintain integration."

For now, logistics and financials will remain in one piece but will be separated in the next major release. SAP officials wouldn't say when it will ship.

New functions in SAP R/3 Release 4.0:

Module	Functions
Financial	• Consolidation • Investment controlling • Treasury management • Self-auditing • Joint venture accounting
Manufacturing	• Sales configuration engine • Product data management • Web-based catalog and purchase requisition system

And users such as heavy equipment maker Deere & Co. in Moline, Ill., said if they have to choose, they will gladly take integration over the more flexible component- based systems any time.

"When you have large volumes of transactions like we do, you need to preserve integration," said Bob Towner, Deere's SAP project manager for financial systems.

"You don't need that integration as much with administrative tasks like human resources, but when you get into manufacturing systems with hundreds of transactions, you have to have it," Towner said. □

NEW PRODUCTS

AMPLITUDE SOFTWARE CORP. has announced Reserve Enterprise 2.0, a World Wide Web-based scheduler and manager of office resources.

The Tiburon, Calif., firm said the software supports Windows NT and Unix directory services and allows users to search and schedule resources such as meeting rooms, computer equipment and vehicle fleets over the Internet. Time zone intelligence and the ability to generate multiple electronic-mail messages when a reservation is made also are included.

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www.amplitude.com

CONCIERGE, INC. has announced Personal Communications Attendant (PCA), a Windows 95-based application that reads electronic-mail, fax and voice messages stored on a PC over any telephone connection.

The El Segundo, Calif., firm said PCA uses optical character recognition and text-to-speech modules to convert incoming messages to digitized voice output streams. When prompted by a user with the appropriate Touch-Tone code and spoken password, the software reads messages and allows them to be saved, discarded or forwarded in fax, E-mail or voice mode. PCA complies with the Messaging Application Programming Interface, Telephone Application Programming Interface and Speech Application Programming Interface.

PCA costs $199.95.
Concierge
(888) 722-6246
www.pcahome.com

Experienced users offer secrets to SAP success

CONTINUED FROM PAGE 59

change management. You need to change the compensation scheme to reward people" for changing their job responsibilities and functions, he added.

Dr. Edith Martin, chief information officer at Eastman Kodak Co. in Rochester, N.Y., said it is easier to meet the demands of a SAP installation by training internal IT people rather than bringing in outsiders.

"You have to have the right people at the right time — the best you've got," Martin said. A SAP implementation "defines your business for the long term; it's not a project for the B team."

QUICK DECISIONS

Robert Wooden, manager of the business system support group at Cultor Food Science, Inc. in New York, said it is important to be committed to making decisions — and resolving disputes during implementation — in a short time to keep the process moving along.

"Our goal was to make all decisions within 48 hours," Wooden said. He added that senior managers adopted the same schedule. Cultor, a maker of food additives and other chemicals, implemented a multiple-module, 170-user SAP system in six months.

WHO DOES WHAT?

Because SAP software changes business processes so fundamentally, there may well be certain processes — new or old — that don't have anyone responsible for them, Wooden said. "Our No. 1 issue was organizational and training issues," he added.

Two things Wooden said he wishes he could have done differently are having a bigger project team from the start so people wouldn't have to double up quite so much, and to communicate better with end users. "We did not do nearly enough communication," he said. Writing a weekly newsletter about the installation, for example, might improve end-user acceptance of the project.

"Prepare senior management for the magnitude of the real investment. Present the total picture."
– Edith Martin, Eastman Kodak

Martin had another piece of advice. "Prepare senior management for the magnitude of the real investment. Present the total picture," so top executives understand the real and intangible costs of the installation, she said. Only by knowing what the SAP project will mean for staffing and changes to business processes can they be effective leaders, she said.

"It's not an easy journey. But for the IS community, there's never been such a rich opportunity to contribute to the bottom line," Martin said. □

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LTV Steel Company *ROI=16,995%*

As the third largest steel operator in the U.S., they've been using SAS software for data warehousing since long before the term was coined. According to Senior Statistician Robert Scharl, "SAS software is THE element of our data warehousing solution. It beat everything else for data retrieval...and it would have cost us maybe a half million dollars to bring something else in for a data warehousing system."

Phillips Petroleum Company Norway *ROI=151%*

As a leader in the high-stakes oil and gas industry, Phillips Petroleum relies on its SAS Data Warehouse for an up-to-date picture of company health and safety trends. "With the help of data warehousing, we have an overview of all the 'criticality' factors involved in the daily operation of oil producing platforms," says Incident Analyst Pål Navestad. "In addition, historical data makes a great contribution to cost-efficient design and redesign of our facilities. This knowledge tells us which preventive measures are most effective for increasing revenue and profitability. Quite simply, our SAS Data Warehouse helps to reduce injuries and saves money."

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Please complete the questions below.

1. BUSINESS/INDUSTRY (Circle one)
10. Manufacturer (other than computer)
20. Finance/Insurance/Real Estate
30. Medical/Law/Education
40. Wholesale/Retail/Trade
50. Business Service (except DP)
60. Government - State/Federal/Local
65. Communications Systems/Public Utilities/Transportation
70. Mining/Construction/Petroleum/ Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90. Computer/Peripheral Dealer/Dist./ Retailer
95. Other_____ (Please Specify)

2. TITLE/FUNCTION (Circle one)
IS/MIS/DP MANAGEMENT
19. Chief Information Officer/Vice President/Asst.VP IS/MIS/DP Management
21. Dir./Mgr. MIS Services, Information Center
22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services
23. Dir./Mgr. Sys. Development, System Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Management

CORPORATE MANAGEMENT
11. President, Owner/Partner, General Mgr.
12. Vice President, Asst.Vice President
13. Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
51. Sales & Mktg. Management
70. Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)
Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No
Intranet Products ❑ Yes ❑ No

4. Which of the following products do you buy, specify, recommend or approve the purchase of? (Check all that apply.)
(a) ❑ Internet software
(b) ❑ Internet browsers
(c) ❑ Web authoring/development tools

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1. BUSINESS/INDUSTRY (Circle one)
10. Manufacturer (other than computer)
20. Finance/Insurance/Real Estate
30. Medical/Law/Education
40. Wholesale/Retail/Trade
50. Business Service (except DP)
60. Government - State/Federal/Local
65. Communications Systems/Public Utilities/Transportation
70. Mining/Construction/Petroleum/ Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90. Computer/Peripheral Dealer/Dist./ Retailer
95. Other_____ (Please Specify)

2. TITLE/FUNCTION (Circle one)
IS/MIS/DP MANAGEMENT
19. Chief Information Officer/Vice President/Asst.VP IS/MIS/DP Management
21. Dir./Mgr. MIS Services, Information Center
22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services
23. Dir./Mgr. Sys. Development, System Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Management

CORPORATE MANAGEMENT
11. President, Owner/Partner, General Mgr.
12. Vice President, Asst.Vice President
13. Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
51. Sales & Mktg. Management
70. Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)
Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No
Intranet Products ❑ Yes ❑ No

4. Which of the following products do you buy, specify, recommend or approve the purchase of? (Check all that apply.)
(a) ❑ Internet software
(b) ❑ Internet browsers
(c) ❑ Web authoring/development tools

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Audio, data conferencing

CONTINUED FROM PAGE 59

voice with data conferences using a widely recognized standard for data sharing. It incorporates Microsoft Corp.'s NetMeeting and can be used with another popular client, Intel Corp.'s ProShare, to enable groups to collaborate on documents and talk and edit in real time. Audio Conference Server is designed to enhance audio quality for users with 28.8K bit/sec. modem or faster Internet connections.

LiveMeeting Suite costs $5,819 for 15 users and up to $23,089 for 100 users. The Audio Conference Server starts at $895 for five users and goes up to $19,995 for 225 users.

Regional Internet service provider Internet Operations Center, Inc., has been using both products for about a month, testing them with audio and data conferences of up to 60 people.

AN IMPROVEMENT

Doug Shuck, director of engineering at the Southfield, Mich., company, said the suite is an improvement over NetMeeting and other products that make it "tough to pass the baton around" for who controls the meeting.

With other products he has tested, conferences were "really chaotic," Shuck said. OnLive lets him dictate who controls a meeting and allows the leader to shut off "the unrulies," he said. Shuck said it also offers password protection so a leader can control who has access to a meeting.

Testing the OnLive software are the following two users:

- Instill Corp. in Palo Alto, Calif., is about to begin using LiveMeeting Suite to provide a business collaboration tool for users to conduct online conferences and share applications. The company is providing electronic-commerce services for supply-chain applications in the food service industry and hopes to use the software to connect 40 salespeople, a spokesman said.
- EF Education in Stockholm, Sweden, uses the Audio Conference Server to connect 13,000 part-time English-language teachers to students over the Internet.

Analyst Rob Enderle at Giga Information Group in Santa Clara, Calif., said the software could help trainers who need to talk to large numbers in Internet classrooms. But it also could be valuable for a meeting of stockholders or a distributed board of directors.

The market for such products is in the "tens of millions of dollars," but so far is dominated by Intel and PictureTel Corp. in Andover, Mass., with much more expensive products, Enderle said.

The biggest obstacle OnLive faces in marketing its product is that major corporations will find it "too cheap," Enderle said. "I'm serious about that. People think you need to spend millions to accomplish what this does, and they might think this is a toy, but it's not." □

NEW PRODUCT

PUMA TECHNOLOGY, INC. has announced Intellisync, software for PC-to-PC personal information manager (PIM) synchronization.

According to officials at the San Jose, Calif., company, the Windows 95 application provides PC-to-notebook or PC-to-server synchronization of PIM data such as "to do" lists or calendars. It is for users whose companies have standardized on a PIM that is different from the users'.

Intellisync supports Microsoft Corp.'s Outlook 97 and Lotus Development Corp.'s Lotus Organizer 97. A version with additional PIM support will be available by year's end.

Intellisync costs $49.95.

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The Sharper Image Web site, built with WebObjects software, gives customers several ways to shop.

How The Sharper Image is making over 1,000,000 visitors a day feel like they own the place.

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Using WebObjects' award-winning development platform and prebuilt business objects, The Sharper Image was able to create a dynamic online catalog in less than 30 days. With catalog items stored as separate objects in a legacy back-end database, updating information was fast, easy, and in some cases, automatic. Next they used WebObjects™ to develop the GiftFinder which generates a customized catalog that narrows the list of potential gifts from nearly 800 to a few appropriate selections. The results have been nothing less than spectacular, with traffic rocketing to over 1,000,000 visitors per day.

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Servers & PCs

Large Systems • Workstations • Portable Computing

Briefs

HiNote prices cut

Digital Equipment Corp. has slashed the price of its business-class Pentium HiNote VP500 notebooks up to 12.5% to make way for new models. Price cuts include the following: Pricing for the HiNote VP560 drops from $2,199 to $1,999. Pricing for the HiNote VP565 drops from $2,999 to $2,699. And pricing for the HiNote VP575 drops from $3,999 to $3,499.

Sharp to go for CE

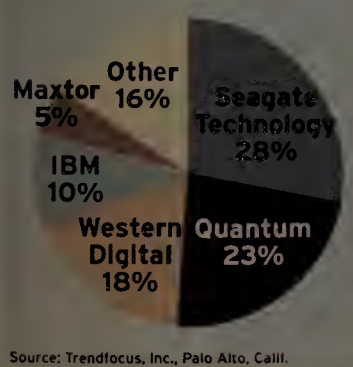
Sharp Corp. will begin selling a sub-$1,000 Windows CE device in the U.S. by year's end, officials told the IDG News Service. Osaka, Japan-based Sharp previously sold only its proprietary Zaurus family of personal digital assistants. Analysts consider the Zaurus devices the leading competitors to machines based on Microsoft Corp.'s Windows CE handheld platform.

Aviion for warehouses

Data General Corp. will target the retail, health care, telecommunications and manufacturing markets with a data warehouse program based on its Aviion AV 20000 Non-Uniform Memory Access server. DG, in Westboro, Mass., will offer bundled data warehouse platforms that integrate data transformation tools, online analytical processing software products, data analysis software and data extraction tools from several vendors.

1997 unit shipments of all disk drives, from PCs to high-end systems

Total units: 106 million



Source: Trendfocus, Inc., Palo Alto, Calif.

STEVE BORNS

Norwest's William Adamowski Jr.: Java is the firm's programming future, but mainframes will still hold an important piece

Shaping a new legacy

By Tim Ouellette

NORWEST MORTGAGE, INC. is betting its future on legacy applications.

But the lending giant is using a combination of modern programming tools, including World Wide Web-to-host connectivity, Java applets and object-oriented technology, to pull the tried-and-true programs into modern times.

MAINFRAME APPLICATIONS

"We want the mainframe to be a collection of services just like in the Unix world," said William Adamowski Jr., chief technology officer at Norwest in Des Moines, Iowa. "And the things that are really ugly about mainframe applications, we are ripping out."

Although most new programming will center around Java, Norwest's crucial loan processing system running on a mainframe is the linchpin for much of the firm's $51 billion in loans annually.

At the same time, Norwest is trying to integrate a loan processing system from Prudential Home Mortgage, which Norwest purchased last year.

Key to these efforts is Jacada, a tool from Client-Server Technologies, Inc. in Atlanta that will separate the user interface from the business logic via Java.

"Instead of migrating two legacy applications to our future architecture, we are converting one to the other," Adamowski said. "With Jacada, we can come close to the work environment one group of users is familiar with without changing the back-end code."

Jacada sits on a Web server and can convert host-based data into Java applets, which are then run on Java clients. That will let Norwest put one face on the two

Norwest, page 70

Postal Service plans to deploy mobile scanners

By Kim Girard

KEEPING PACE WITH Federal Express Corp. and United Parcel Service of America, Inc., the U.S. Postal Service is buying 300,000 handheld scanners to speed up package delivery and improve tracking.

Starting this fall, postal workers will begin testing handheld devices they can use to scan bar codes when they are making deliveries. The mobile scanners are from Charlotte, N.C.-based Hand Held Products. Each data collection device weighs 12 ounces and has 16M bytes of RAM and a large keypad that can be used by employees wearing gloves.

SYSTEM ROLLOUT

Lockheed Martin Corp., in Owego, N.Y., was awarded a $218 million, six-year contract to install the package-tracking and proof-of-delivery system at 38,212 post office branches nationwide. The installation should be completed by the end of next year.

"I think [the project] is part tech upgrade, but it's a 'Keep up with the Joneses' type thing. You

Postal Service, page 71

DIRECT SALES

Corporate buyers stand by their resellers

By April Jacobs

DESPITE RECENT moves by PC vendors such as Compaq Computer Corp., IBM and Packard Bell NEC, Inc. to provide more direct sales channels, many corporate buyers say they aren't ready to shop for computers themselves. They say the built-in service and support they get from their resellers is easier to deal with.

Despite the hype surrounding the advantages of direct sales, Hildy Stover, vice president of information systems at Boston-based Arabella Mutual Insurance Co., said she remains unconvinced it is a better deal.

Proponents of direct sellers said their advantages include a quicker availability of product, generally lower prices and a direct connection to the manufacturer, which can custom-build and configure PCs to a buyer's liking.

"We buy through [a systems integrator] that does a lot of the installation work for us, and we outsource more than that, including the service and maintenance of computers," Stover said.

Stover echoed nine corporate executives interviewed over the

Corporate buyers, page 70

STELLA JOHNSON

Arabella's Hildy Stover: The insurer counts on outsourcing, not direct sales

New Zip drives help company clear storage decks

By Nancy Dillon

NETWORK RESPONSE delays caused by large graphics files used to be a serious problem at Landor Associates, a consulting and graphics design firm in San Francisco.

But according to Rob Pomon, a technology specialist at Landor, increased companywide use of Jaz and Zip removable desktop drives from Roy, Utah-based Iomega Corp. has been a big help. "Our network has only 4G bytes for transferring files. Without removable storage to move graphics files between computers, I would spend my whole day sending E-mail, asking people to clean up network drop-boxes," Pomon said.

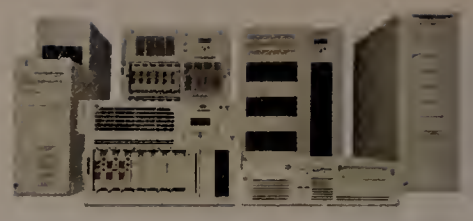
ADDITIONS

Pomon plans to test two additions to Iomega's line of Zip products, the ZipPlus and a notebook version of the original Zip drive, both slated to be announced the week of Sept. 21. They will use Iomega 100M-byte 3.5-in. Zip disks.

The ZipPlus will work with either SCSI or parallel connections, making it compatible with PCs and Macintoshes. It will cost $199.95 and is due to ship in October.

It has a power supply that weighs 4 ounces, about a quarter the weight of the original Zip

Zip drives, page 71



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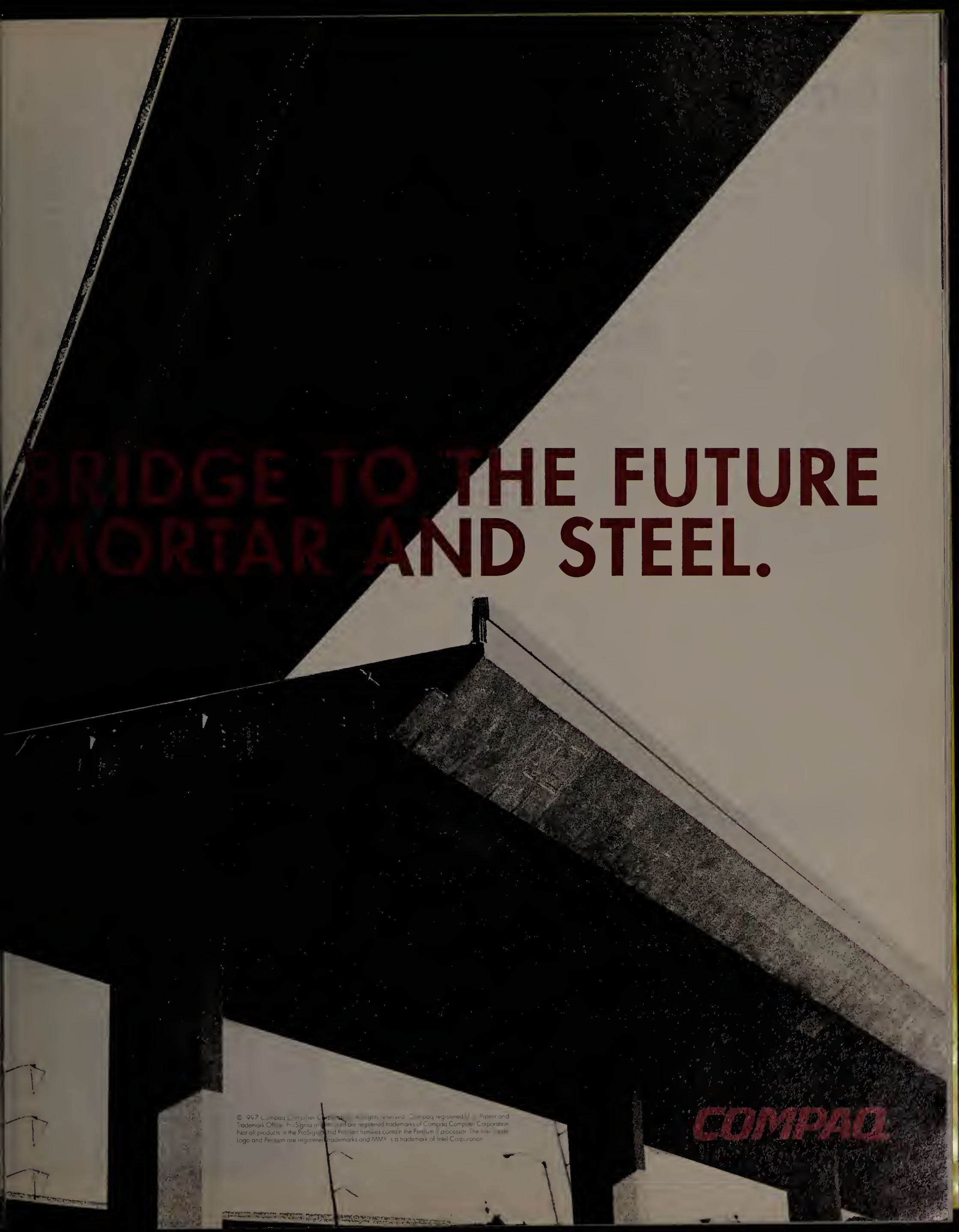

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Corporate buyers stand by their resellers

CONTINUED FROM PAGE 67

past several weeks who now buy through resellers. They said they like being able to go to one place to pick from many brands of PCs and peripherals, as well as service, support and timely price options.

"We find that this is more cost-effective and keeps the people we have internally more focused on what's important to us, which is keeping critical systems up and running and testing out new technology," Stover said.

"It's a mixed bag," said Jim Prevo, chief information officer at Green Mountain Coffee Roasters, Inc. in Waterbury, Vt. He said he likes the idea of being able to order outside of a standard configuration, but he doesn't want to have to shop several places for third-party products such as modems and monitors, which direct vendors offer in limited variety.

"And even though direct vendors offer service and support, it may not be as comprehensive," said Prevo, who mainly uses Compaq desktops.

"Certainly, the direct vendors do offer support, but it may not be enough for very large enterprise customers who need comprehensive services and maintenance," said Jennifer Munson, an analyst at Workgroup Strategic Service, Inc. in Portsmouth, N.H.

And although analysts say direct vendors such as Dell Computer Corp. can react more quickly to falling component prices with lower PC prices and don't have the costs of selling through the channel, both Prevo and Stover said their resellers are quick to respond to price cuts by individual desktop vendors — enough that they don't worry they may be losing much.

"The direct vendors are offering service and support, but not to the extent that HP and Compaq and IBM [do]. But it is adequate for small to midsize businesses," Munson added.

But direct vendors do have other advantages. For example, Dell in Round Rock, Texas, typically ships PCs to customers within three days of receiving an order, and vendors such as Compaq in Houston take up to two weeks to fulfill orders they receive through the channel. Compaq has committed to reducing that time lag significantly and has announced a build-to-order program, but much of its line is still built based on forecasts.

"We go through a [reseller] and buy hardware, and I don't see a noticeable difference on our end" in areas such as price, hardware, performance and support, said Mike Bennett, a program analyst at Boston Scientific Corp. in Natick, Mass. But, because PC buying is easily outsourced, "it is just one less thing we have to worry about," Bennett said. □

Norwest creates thoroughly modern mainframe

CONTINUED FROM PAGE 67

mainframe applications, then shut down the Prudential box without affecting users' performance.

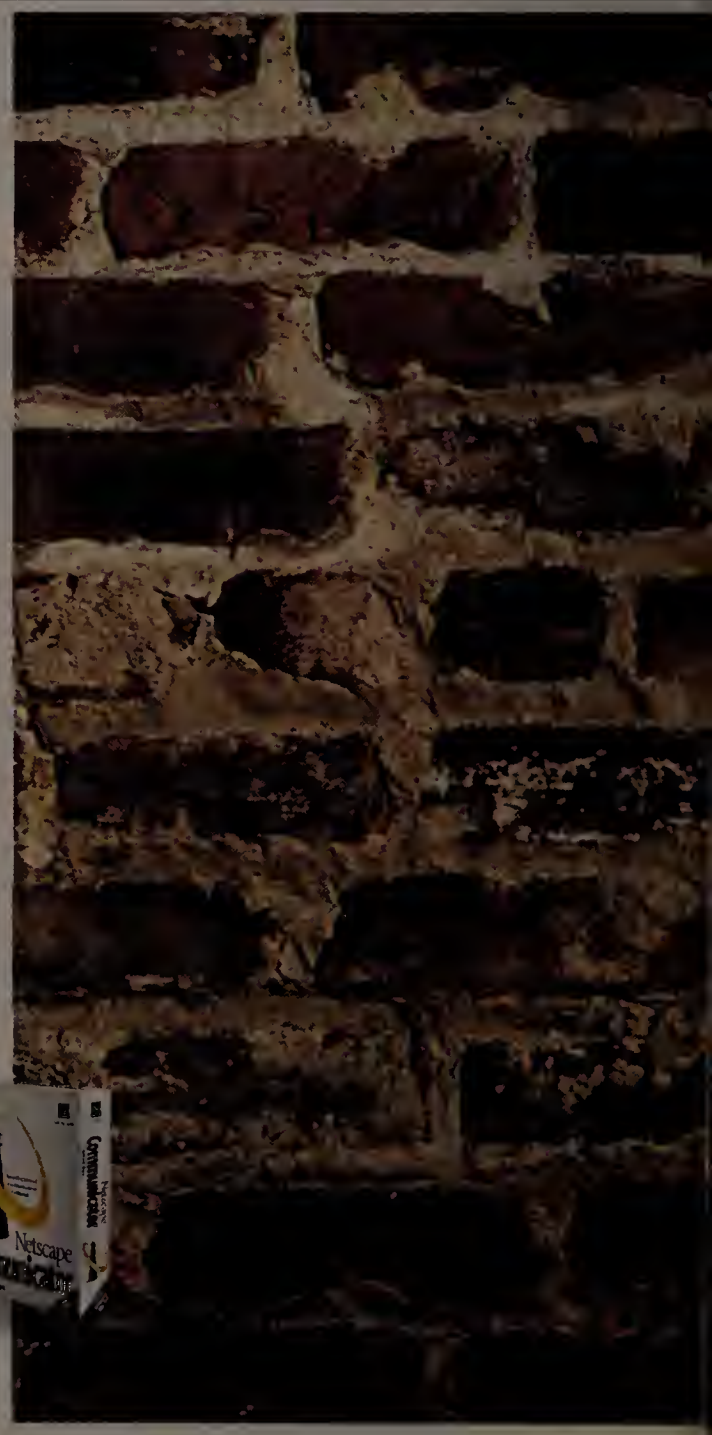
More user sites are turning to tools such as Jacada, which promise to let users hold on to reliable mainframe back-end processing while providing smoother access to and interaction with mainframe data. The tools can help users avoid costly migrations and reprogramming projects for older applications, and they don't alter the host-based code.

In Norwest's case, its plans to implement Java technology as its enterprise architecture made Jacada a strong candidate. "Jacada is a good first pass. Now we can start dealing with legacy systems and take a hard look at what to migrate and how we will trade object services on the back end," Adamowski said.

Next, Norwest plans to completely reengineer its user interface for simple point-and-click access to back-end loan procedures, add workflow and wrap its CICS transactions into Java objects.

That will give the 7,000 users in the organization smoother access to important data and give mainframers in the information systems department room to spread their wings.

IS staffers "are starting to understand that we want to keep the mainframe, but this lets them get a chance to get into more object-oriented work, too," said Dennis Wilson, a systems architect at Norwest. □



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Zip drives clear storage decks

CONTINUED FROM PAGE 67

drive's supply. New proprietary firmware will speed up basic command functions for Windows 95 users, and five multimedia software titles will be bundled with the drive.

Pomon said the ZipPlus' performance enhancements are most important to him. "The Mac/PC option is useful because we have about 80% Macs and 20% PCs. Now if a PC drops out, we will be able to use the drive somewhere else," Pomon said. "The scaled-down power supply is also great because it won't crowd surface space on power strips as much."

The notebook version of the Zip will weigh 6.35 ounces, less than half the weight of the original Zip drive. It will cost $299 and also is due in October. Different versions will be sold to fit eight notebook brands, including those from IBM, Compaq Computer Corp. and Apple Computer, Inc.

Fara Yale, an analyst at Dataquest in San Jose, Calif., said the announcements from Iomega are significant for two reasons. First, ZipPlus will eliminate the need to manage different hardware interfaces with different computer cables. And second, the new Zip drives play into an ongoing war over which drive technology will replace the 1.44M-byte floppy.

MATT HAMBLEN

Landor's Rob Pomon: By using Jaz and Zip drives, the firm has saved time spent on maintenance

"We predict that shipments of high-capacity drives will exceed those of 1.44M-byte floppies worldwide in the year 2000. We are not sure which drive will win," Yale said.

High-capacity drive contenders are divided into two groups. Iomega and SyQuest Technology, Inc. in Fremont, Calif., make up the nonstandard arena, according to Dataquest. In the opposing camp are three SuperDisk — also called LS-120 — vendors that support backward compatibility with the 1.44M-byte floppy: OR Technology Ltd. in Oxfordshire, England, Mitsubishi Electric Corp. in Tokyo and Matsushita-Kotobuki Electronics Industries Ltd. in Matsayama, Japan.

SuperDisk drives use 120M-byte disks from Imation Enterprises Corp. in Oakdale, Minn., that also work in 1.44M-byte drives.

In May, a removable storage report from International Data Corp. in Framingham, Mass., stated that Iomega sold more than 4 million Zip drives last year. Iomega held 89% market share for the same year, and SyQuest held 8%. □

Postal Service to deploy mobile scanners

CONTINUED FROM PAGE 67

can't fall behind in the package delivery business," said Shannon Worthen, an analyst at Frost & Sullivan, a consultancy in Mountain View, Calif. Worthen said such companies become 40% to 60% more efficient after they switch to a bar-code-based tracking system.

The handheld package-tracking system uses bright lasers, so workers can easily scan packages outdoors, said Julie Rios, package information services manager for the Postal Service. "In direct sunlight, it's hard to see whether you have a scanner on the bar code," she said. "With these scanners, you can scan a lot quicker."

Parcel delivery time and information will be automatically stored on the scanner and can be downloaded later to the Postal Service's host system. Workers can set the scanner in a docking station that transfers data via modem to a database in San Mateo, Calif. All post office branches will have access to that information.

Customers can use the system to verify mail deliveries for Express Mail, Priority Mail, parcels, international shipments and certified and registered mail. Rio said the Postal Service is developing Desktop Post Office, a software application that smaller businesses can use to track mail.

Meanwhile, MCI Communications Corp. in Washington is revamping the Postal Service network to a new Internet-based system, said George Wright, an information systems analyst contracted by the Postal Service. Within the network, 28,000 smaller locations dial out via toll-free numbers to host processors. The Postal Service's 1,000 largest offices use dedicated connections. □

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Managing

RETENTION RECRUITMENT RAIDING

First part in a special series

Finding and keeping good people is the main issue facing most information systems managers. This month, *Computerworld*'s Managing section focuses on the "three R's" of staffing: retention, recruitment and raiding. Today, we offer two reports on retention:

15 Ways to Keep Your People: Senior editor Robert L. Scheier describes 15 cost-effective ways to keep your staffers from leaving.

Home-field Advantage: If you're stuck in a small town, how do you compete with big-city shops? Don't. Read how trucking company J. B. Hunt drastically cut its turnover rate by focusing on local talent in rural Arkansas. Page 74

Here's what you'll find in upcoming issues:

Next week: The banking industry has helped make Charlotte, N.C., a boomtown. But that has created problems in IS for a local retail institution.

Sept. 22: As technical skills become more scarce, IS managers get creative in recruiting. And human resources departments, sometimes a hindrance, are happy to help.

Sept. 29: Some firms have pushed college recruiting up a few notches to develop IS "farm teams." Also, columnist Jim Champy says IS managers should place more emphasis on retention than on recruiting — and tells why.

ILLUSTRATIONS BY TIMOTHY CARROLL

BY ROBERT L. SCHEIER

15 Ways to Keep Your People

Losing good people is Headache No. 1 for many IS organizations. Here are some ways to cut turnover without breaking the bank.

Survey after survey has shown that pay isn't the biggest reason information systems professionals change jobs. Assuming they're getting fair wages, the quality of their jobs — and of their bosses — is what makes people stick around or leave. Here are some of the cost-effective ways managers are keeping scarce IS talent happy at home.

1 Give them room: Bigger cubicles — 72 sq. ft., to be exact, roughly the size of a small car — are cost-effective perks at Huntington Service Co., the IS and operations arm of Huntington Bancshares, Inc., a bank holding company in Columbus, Ohio. "We hire people right out of college at $35,000," President Rick Sellers says, "and it doesn't take that long before you're paying the people $50,000 to 60,000." Given those pay scales, it doesn't cost that much to "give them an extra 8 to 10 sq. ft. of floor space."

2 Stop the insanity: Petty rules can greatly hurt morale, Sellers says. Rather than put out only small stashes of pens, paper and staples to prevent theft, he opened the supply closet so people could take what they needed. "If we don't trust these people" not to steal supplies, he says, "they shouldn't be working for us." That helped morale, and there has been no sign of pilferage, he says.

3 Improve performance reviews: "The performance appraisal process is often abominable," says Ronald LeBleu, president of Software People Concepts, Inc., a Monroe, Conn., consulting firm. Rather than being an uncomfortable ordeal for both manager and employee, he says, it should be a place for talking about career paths within the company.

4 Do exit interviews — later: Interviewing people as they leave will only give you polite generalities, not what actually drove them crazy about your company. Track them down six months later and ask them why they really left, LeBleu advises. If they're happy in their new jobs, you'll get honest feedback. If they're unhappy, you might be able to hire them back.

5 Put them to work fast: The first six weeks are critical to making new people feel like they're part of the team, LeBleu says. Get new hires up and running on the hot projects you promised them before they turn around and quit. A real turnoff, he says, is when a new employee comes to work to find his cube doesn't even have a PC.

6 Squeeze in training: It's often harder to find time for training than to find the money for it. Sellers hired a training coordinator to schedule training during slack time and brought trainers on-site to reduce travel time.

Rick Sellers at Huntington Service: Petty rules can hurt morale. Rather than put out only small stashes of pens, paper and staples to prevent theft, he opened the supply closet so people could take what they needed.

7 Update your skills premiums: Pay employees premiums of 10% to 20% over their base wages for learning new skills needed for critical projects, suggests David Foote, managing partner at Cromwell Partners LLC, a Stamford, Conn., consultancy. Review your needs annually, and tell employees which skills will earn premiums one year out to allow time to learn those skills. Changing premium skills every 15 months or so encourages employees to stay because they can keep current on new technology.

8 Measure managers on reviews: Because timely performance reviews are so important, measure IS managers on how well they do reviews and whether they're done on time, recommends Bill Huffstutler, director of the Information Management Forum, an Atlanta-based organization of senior information technology executives.

9 Give perks, not cash: Relatively inexpensive rewards can dramatically increase job satisfaction, Foote says. Examples include tickets to sporting events, a day of golf on a championship course, even a gift certificate for a massage. A family weekend at a resort rewards a spouse and children for the long hours an employee has worked and boosts the employee's stature in their eyes.

10 Hire more carefully: One major reason people stay on the job is because they like their co-workers. But many employers focus on technical skills rather than the harder-to-identify personality traits that determine whether someone will fit into the corporate culture. Jeff Kaplan, director of strategic marketing at International Network Services, a Sunnyvale, Calif., network integration and management services firm, admits that his employer sometimes focuses too much on technical skills instead of on personality traits such as whether recruits would be comfortable in an environment of constant change. If they aren't, he says, it leads to rapid turnover.

11 Get out of the way: Micromanaging mid- and lower-level managers is a surefire way to drive people out of your company, says L. Paul Ouellette, CEO of Ouellette & Associates Consulting, Inc. in Bedford, N.H. "The first time [an employee] sees an opportunity where their value is going to be respected, they are gone," he says. He recommends establishing a vision for what you want to do, hiring people you trust and giving them broad authority to execute your vision.

12 Get coordinated: Many IS projects are so disorganized that employees "often find themselves bumping into each other or not knowing where to hand off a task," Kaplan says. This inefficiency not only increases costs, but it makes jobs harder for employees and makes them more likely to leave. Kaplan's firm tries to set "clear job responsibilities and objectives so each member knows where they fit."

13 Communicate, communicate: IS professionals want to know how their company is doing, how their IS group is doing and whether their manager has a strategic vision. For example, Coca-Cola Enterprises, Inc. in Atlanta holds quarterly staff meetings where everyone can pepper Rick Engum, vice president of IS, with questions about everything from market share to pay issues. The fact that he answers all the questions without preparation makes employees trust him more and thus makes them more likely to stay, says Allison McMahon, manager of human resources for the IS group.

14 Offer flextime, telecommuting: That's one of the "low-cost, no-cost" retention strategies being considered at Coca-Cola, McMahon says. "If we can offer a four-day, 10-hour [per day work week] to an individual and the next employer can't ... that helps us retain" staff.

15 Assign coaches or mentors: Managers of technical projects sometimes don't have the time or skills to help employees manage their careers and professional growth. At Huntington, Sellers is experimenting with "resource managers" who will handle hiring, firing, training, performance reviews, disciplinary actions and help employees establish career paths. He says he hopes these "coaches" can do a better job helping employees build careers within the company than the employees' managers, who are too busy handling technical issues and project deadlines. □

Scheier is Computerworld*'s senior editor, management.*

COMPUTERWORLD

Do you have some thoughts on retention, recruitment and raiding of IS professionals? Share them this month in a forum on our Web site at *www.computerworld.com*.

Different strokes for different folks

Tailor perks to the person — and corporate culture

When it comes to keeping your IS staff happy, one size doesn't fit all.

So argues David Foote, a former human resources professional who has been an IT industry analyst and consultant for 16 years and is now a managing partner at Cromwell Partners, a Stamford, Conn., IT management consultancy.

Foote says most IT professionals fall into one of two groups, each of which is motivated by different types of rewards. The first is the technical specialists, Foote says, who are so driven by money that some "respond like trained seals" to pay hikes.

The second group is the "business technologists/consultants," who often serve as points of contact between IT and the business units and are more expert in a business area than a technology area. This group goes more for rewards that boost their status, careers or long-term financial security, he says, such as stock options, training or recognition.

Foote says even noncash incentives can keep technology hotshots happy if you match the reward to the individual's personality and your corporate culture. "Showy" rewards, for example, pump up the recipient's ego. They range from public "thank you" lunches to luggage tags or computer cases that advertise the employee's accomplishments.

"Pampering" awards provide services or experiences to employees or their families. They include tickets to ball games, vacations with spouses or personal care services such as massages. By sending employees and their families to resorts, Foote says, the company sends the message, "We care about you and your family."

The final category, he adds, consists of "useful" bonuses, which include flexible work arrangements, telecommuting and training. But what works in one company might not in another. For example, he says, long-range reward programs such as stock options work best in companies whose cultures encourage employees to develop new skills over time, rather than in companies that focus on short-term, project-by-project results.

And if your chief financial officer balks at the cost of even minor perks, Foote says, remind the officer that replacing employees can cost as much as 100% of their annual salaries. Avoiding such costs, he says, "is a highly convincing argument for a CFO."

— Robert L. Scheier

MANAGING IS

HOME-FIELD ADVANTAGE

IS personnel at trucking company J. B. Hunt were leaving at a 25% annual rate. But now, turnover has plunged to 2%. Why? Hunt stopped trying to lure outsiders to northwest Arkansas and began developing local talent to prevent them from hitting the road. **By Robert L. Scheier**

Bob Logan says IS at trucking company J. B. Hunt "would never get ahead if we kept losing people"

TODD DAVIS

Bob Logan has eased his information systems skills shortage by turning his company's greatest weakness into a strength.

When Logan came out of retirement early last year to become chief information officer at J. B. Hunt Transport Services, Inc., the annual IS turnover rate was 20% to 25%. One of the biggest problems was finding midlevel and senior IS professionals willing to move to Hunt's home base of Lowell, Ark., a town of 3,000 people about 100 miles east of the nearest big city, Tulsa, Okla.

National advertising and headhunters drew recruits "who didn't necessarily want to come here," Logan says, and they often were reluctant even to visit to see what the area was like. Logan, who was brought in to improve links between Hunt's business units and the 200-member IS group, knew "we would never get ahead if we kept losing people."

Since then, Logan has cut the annual IS turnover rate to 2%. His solution: Stop trying to compete with the IS organizations of big national firms and even local IS organizations such as Wal-Mart Stores, Inc., about 15 miles away in Bentonville, Ark. Instead, he focused on "creating an environment where people are more than happy to do their best work." It seems to be working: In June, Hunt ranked No. 25 in *Computerworld*'s 100 Best Places to Work in IS.

For example, Logan figured, rather than recruit mid- and senior-level staffers from outside, "Why not promote the people in-house who were 80%, 85%, 90% ready" to move into mid- to senior-level positions and who wanted to stay in northwest Arkansas.

The in-house candidates "had most of the technical skills" needed to move up, but not the management experience, Logan says. On the plus side, he says, "We know them as people. We know how they think, how they act. It wasn't exactly a leap of faith to put them in those jobs."

However, it did "require us to give those people some additional training, coaching and counseling to get them ready" for their jobs, Logan says. Two or three such managers have been in their new posts for anywhere from three to nine months, and "they're as good as if they've been there forever," Logan says.

Jenny Coggin describes herself as someone who was "85% ready" when she was tapped last September to head a 15-person IS team developing applications for a growing division of Hunt. Coggin, who joined the firm six years ago as a programmer/analyst, says she's confident in her project management skills and her knowledge of the systems she manages but is still working on how to balance employees' desires to work on new technologies with the need to meet corporate goals.

She says it's vital that employees be involved in setting objectives for themselves and advancing their careers. Logan tries to accomplish that with such things as "Give me five" sessions in which employees were asked to suggest five ways IS could be made more productive or their jobs could be improved.

Not all suggestions are home runs. After developers complained about constant interruptions, Logan instituted a daily "quiet time" from 1 to 4:30 p.m. every day when developers could shut the doors leading to their area and turn off the telephones. It was cut back by one hour after other departments started making cracks about the developers' "nap time."

The point is to try to improve the work environment, recognizing that daily job satisfaction is as important as pay in keeping good people. "We did a lot to get our business units communicating more with our IS people and getting them to work together," Logan says, "so things became a little bit less hectic" and IS had more lead time on critical projects.

Logan hosts a bimonthly meeting of the entire IS staff to discuss how business issues affect ongoing IS projects. "This way," he says, "when we say 'stop this' or 'start this,' at least [IS staff members] have some sense of why."

To make sure job candidates will fit in, Logan requires everyone who would work with recruits to spend an hour or two with them prior to hiring. That helps avoid making bad hires and gives everyone on the team more responsibility for helping newcomers fit in.

Promoting internal candidates to high-level jobs has opened up several lower-level jobs. Here, again, Logan is looking for local candidates, in part through an aggressive internship program with the University of Arkansas. So far, Logan has hired four or five recent graduates who worked with Hunt for a year to 18 months before graduation. To help ensure future graduates have the right skills, a Hunt IS manager will teach a course on IBM's CICS at the university.

Tracy Black, director of applications, is quick to point out that Hunt is working with newer technologies as well, such as building World Wide Web-enabled applications that give customers instant updates on how much space is available on Hunt trucks. Exposure to new technologies has played an important role in keeping people at Hunt, although "it's still too early to tell quantitatively how much of an impact it's making," she says.

In fact, the changes Logan is trying to make are what employees commonly ask for in job satisfaction surveys. "It's just good, common, people practices," he says, "and that's going to work whether you're in Bozeman [Mont.], Atlanta or Hawaii." □

Scheier is Computerworld*'s senior editor, management.*

Keeping them happy — and keeping them

Some tips to help retain your IS employees:

DON'T waste time worrying about competition from other employers.

Instead, **GROW** people already on staff whose skills you know and trust.

BUILD formal processes to help them gain needed skills.

TELL them how they're doing as individuals, how IS is doing as an organization and how IS fits into the company's strategy.

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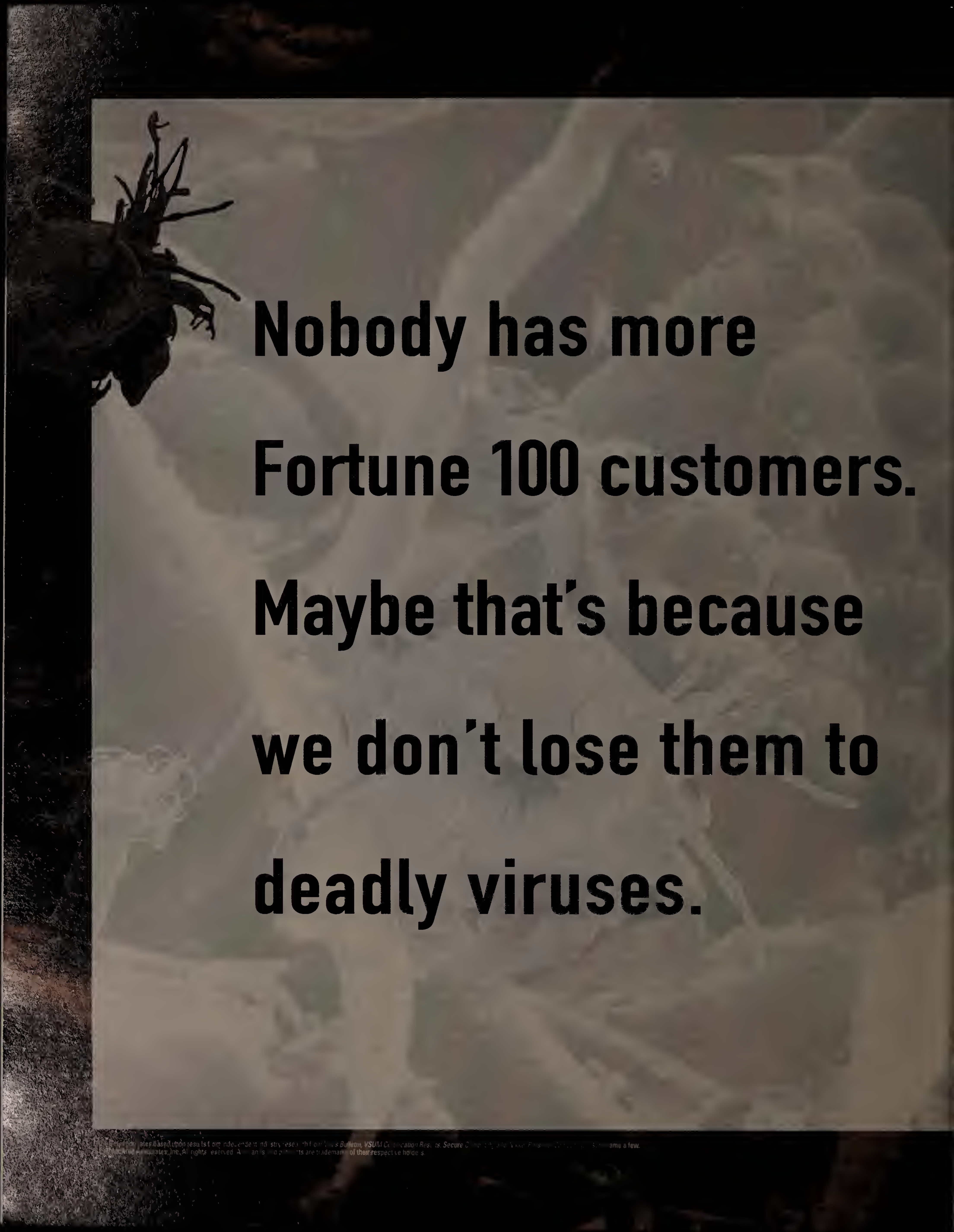
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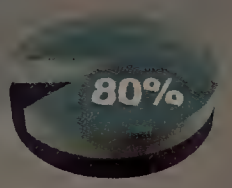

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MANAGING

CIOs WANTED; AMATEURS NEED NOT APPLY

LEILANI ALLEN

Whoever came up with the phrase "CIOs should be businesspeople first, technologists second," ought to spend more time on the front lines of technology decision-making.

No CEO would hire a CFO who doesn't understand taxation law. It makes about as much sense to hire a CIO who doesn't understand technology, IS disciplines or IS culture.

Yet CEOs, frustrated with their inability to understand IS, are doing just that. The results can be disastrous. Let me tell you about some situations where supposedly business-minded CIOs have caused IT catastrophes. (The first is a composite of two similar companies where the same sad story is being played out.)

The wrong moves

When the CIO of a midsize specialty firm resigned, the CEO took it as an opportunity to revamp IS. The old CIO sometimes annoyed line management with his emphasis on discipline, planning and high quality standards. So the CEO named a business executive, Adrienne, to take his place.

Adrienne was determined to see that IS should operate like every other department in the company. Her notion of "alignment" was that the customer was always right. Any complaint from a business manager immediately caused Adrienne to swoop down to IS and find out what was wrong.

To send the appropriate message, Adrienne bypassed the existing IS managers and hired someone from outside to head up the key strategic project, a rewrite of the core production system using object technologies. Adrienne also was convinced that IS contained a lot of deadwood, so she rewrote the job descriptions and made everyone reapply for their jobs. Until the department could be "reorganized," training was put on hold.

The key development project went haywire almost from the start. The new project manager had little actual project experience and knew nothing about object technologies. Because of that ignorance, both the data and object architects assigned to her staff were unable to communicate with their boss. In addition, the project manager left critical design issues to a systems integrator who didn't understand the existing systems architecture or the application. Frustrated, both architects quit within a few months. There was constant turnover in the rest of the project team. The implementation date for the new system was repeatedly pushed back.

Several of the longer-term employees who reapplied for their jobs weren't "rehired." That, along with the demise of education programs, hurt morale. But those weren't the only things that got the IS staff steamed. They saw that Adrienne and her new manager were always willing to compromise quality standards in the face of unrealistic deadlines from users.

As a result, 50% of the staff left within the first year of Adrienne's regime. The new system still hasn't been delivered. Now there aren't enough people left who understand the legacy systems to keep them running efficiently.

A project flops

Philip was a division executive hired to oversee development of a corporate data repository to be used by all divisions in a large, international company. Development was being outsourced to a major systems integrator. Philip had no IS background but was available because of a reorganization. He was given a small staff and told to get it done on schedule.

The preliminary design of the system called for a largely batch application. But Philip's staff and his own reading in the newly discovered IS literature convinced him that what was needed was an online real-time database with management inquiry and reporting and a PC graphical user interface application.

Moving from a batch to a real-time system required a significantly upgraded server, resulting in budget overruns. Because the various sites had many equipment types and operating systems, the PC application development became complicated and time-consuming.

Moreover, the remote sites had to learn the PC application, as well as how to use and analyze the information. There was no provision for training in the application or the reporting system, so hardly anyone used it, and the help desk was ill-equipped to support that software. It was perceived as a major failure.

Lessons learned

Adrienne and Philip show why managing IS isn't a job for amateurs. Adrienne set out to reorganize and reorient IS without the faintest understanding of the skill sets and talents required to develop and maintain systems. She gutted the knowledge base and placed her company in a situation where it couldn't realistically plan for a technology future. Philip succumbed to techno-hype and didn't sufficiently differentiate "what could be" from "what was needed."

IS isn't like other departments: Its workforce is more mobile and can easily walk if management doesn't meet expectations. Business CIOs have to understand they are as beholden to the troops as they are to their peers and bosses. They have to learn how and why things are done the way they are. It's not that there can't be improvement, but it's best to heed the adage, "Before you tear down a wall, find out why it was built." □

Allen's column deals with people issues managers face every day but are reluctant to discuss openly. Each is based on a real-life situation. The names and certain circumstances have been changed to protect confidentiality. Allen is a director at Tenex, a management consulting firm in Burlington, Mass.

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Buyer's Guide

PRODUCT REVIEW: Web servers tested by Computerworld and Client/Server Labs matched up well on the basics, but management and development features set the good ones apart

DIFFERENCES LIE in the TOOLS

By Todd P. Pike

Web servers are everywhere. In today's world of private intranet and public data distribution, virtually every workstation connected to the Internet is a potential World Wide Web server. Several operating systems now include Web server software or make one available at no additional cost. With that in mind, Client/Server Labs, Inc. evaluated eight Web servers (four for Windows NT, three for Unix — two for Sun Microsystems, Inc.'s Solaris and one for Linux — and one for Novell, Inc.'s IntranetWare). We evaluated each product based on the following criteria: ✖ **Ease of installation** ✖ **Ease of management** ✖ **Features** ✖ **Ability to connect to a database**

Of the servers evaluated, four are separately packaged commercial servers, and four are either packaged with the operating system or are freely available.

The major differences among the servers came down to the quality of the administration tools — and to a lesser extent, the ability to write applications for the Web server.

All the Web servers were installed easily and handled basic functions, such as serving up static pages. The addition and improvement of administration tools constituted the first dividing line between the servers. Although some base-level operating system skills were required for most of the server software installations, the skills required to administer most of the servers and their content were reduced to point-and-click tasks. None of the servers had tools that were far superior to the others, but there were a few weak performers. At least one of those, Apache Group's Apache 1.2, made up for its weakness with a wide variety of application development tools.

Web application or Common Gateway Interface (CGI) development tools and the ability to connect to corporate databases was the next dividing line among the servers. The differences centered on how many databases were supported and how easy it was to connect to them and put extracted data in our pages. All the Web servers could connect to at least one database, and some of the servers made it fairly easy to make a database connection with the application development tools that came with the server. But Oracle Corp.'s Web Application server stood out — not only because of its ability to connect to almost any database but also by making that task easy to accomplish. As more companies begin to use Web-based applications, what's included in "basic functions" certainly will have to expand.

WEB SERVERS VS. APPLICATION OR INTRANET SERVERS

Web servers are no longer just special programs that return our static Hypertext Markup Language (HTML) formatted files. Each server in the evaluation offered a wide variety of features outside of those required by the particular Hypertext Transport Protocol (HTTP) version

supported. All those servers claim to be compliant with Version 1.1 of HTTP. We successfully tested some of the Version 1.1 features, such as virtual hosts, on each of them. Other Web server features that are important to managers include availability of graphical configuration tools, good documentation, security features and dynamic page application support.

You also should consider whether your staff has the skills to administer the server and keep the content up-to-date. A Web server deployment isn't the best time to learn a new operating system, especially if your staff is new to Web servers. Fortunately, most of the evaluated servers run on a variety of hardware platforms. The hardware and operating system a Web server runs on will play a part in the choice of servers. For example, most of the servers run on Unix and Windows NT. But Sun's Web Server is limited to Solaris, and Novell's Web Server 3.0 is based on IntranetWare. Microsoft Corp.'s Internet Information Server (IIS) and O'Reilly & Associates, Inc.'s WebSite Professional run only on NT, and Apache has a pre-beta release of its NT version on its Web site. Factors such as performance and cost weren't evaluated in this comparison. The main barrier to evaluating performance and cost was the variety of hardware required for the evaluation. The point wasn't to evaluate a total solution — which would include the best hardware for a particular server — but to look at the latest version of each software package and compare their features.

If you're on a tight budget, evaluate the server bundled with your operating system and Apache, the "free" server. Features vary widely, and a purchased third-party server could easily save time and money over a "no-cost" server that requires a great deal of technical skill and effort to administer. But if a no-cost server meets your needs and matches your skill set, you may have the ultimate economical solution.

TEST ENVIRONMENT

We tested the servers on three platforms. The NT and IntranetWare servers each were installed on a Dell Computer Corp. 4100 with two 200-MHz Intel Corp. Pentium Pro CPUs and 256M bytes of memory. The Solaris-based servers were installed on a Sun Ultra-2 with a single UltraSPARC CPU and 128M bytes of memory. The Apache server was installed on an IBM PC 330 with a single 66-MHz 486DX2 CPU and 32M bytes of memory. The hardware used ranged from a high-end server to a low-end PC. Not only did that reflect what's possible, but it also showed that you don't have to use a high-cost machine to get started.

Apache 1.2

Apache Group and Red Hat Software, Inc.
800-454-5502
www.redhat.com
www.apache.org

Apache, the most popular Web server in the world, is available free through the Internet and comes packaged with various Unix versions, including Red Hat Software's distribution of Linux 4.2 used in our evaluation.

Installation was a snap. It took us about 20 minutes to install Apache as part of the operating system installation process. Adding the server to an existing system would have taken only a couple of minutes. When you point your browser at your now-running server, you see a page that describes the locations of files important to configuring, monitoring and adding content to the server. But a novice webmaster may need to know more than just the file locations to properly configure the server. That highlights a weakness of the Apache product: its management tools.

There aren't any management tools — none that come prepackaged with the server. But there are commercial and freeware third-party tools that can help configure and run the server. Without such tools, making changes isn't as convenient as point and click, but it also isn't terribly difficult. We added a virtual server based solely on an example already in the configuration file. Reading the provided examples should get most system administrators on their way to mastering the server.

Apache's strengths are its multiplatform availability, CGI tools and ability to be customized. Full source code for the server is available, so you can port to a nonsupported operating system and customize, given the appropriate programming skills and a little time. Besides the Apache server, Red Hat's Linux includes several application and CGI development tools that make it the most flexible package and the most likely to meet the programming skill sets available. The tools include some familiar names such as Perl, Java, C and C++ It also includes some less familiar but just as powerful scripting languages such as the Tool Command Language known as Tcl (pronounced "tickle") and Python. Other Web servers provide some good tools, but none have as many or as much variety.

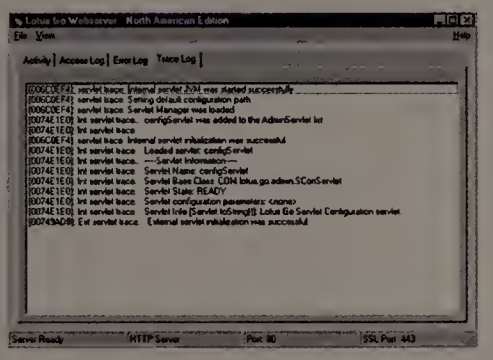
Prepackaged solutions such as the Red Hat product leave little to chance and provide a complete software package. Once you compile and install Apache from scratch, the skills needed increase rather quickly. Companies that are interested in running Web servers on several different hardware and operating system environments certainly should consider Apache. But even with those requirements, a company with weak in-house systems administration skills probably should back away from Apache or consider a commercially packaged Web server.

Domino Go WebServer 4.6

Lotus Development Corp.
800-343-5414
www.lotus.com

Domino Go WebServer, previously known as Lotus Go WebServer, isn't a new player in the market, but it was new to us. It arrived in compressed archive format, which when extracted gave a traditional set of Windows NT installation files. The setup program started an installation wizard that walked us through the setup details. A few minutes later, everything was ready to go.

Server management was done via the server with a Web browser interface. The initial screen has a link to a configuration and management page made up of several text-only links. That made configuring the server more difficult than it should



have been. The clutter especially stood out considering the high quality of the other pages. After finding the correct link and using some help from the online documentation, we had a virtual host set up and pointing to our test files.

The online documentation was extensive and one of the server's strengths. With little trouble (but some time), the tools and examples provided with Domino Go WebServer could yield a good set of pages with database connectivity. But without experience with the application programming interfaces (API) or the other interfaces provided, it could take a major investment of time for someone without experience to get anything other than

Web servers, page 82

ANALYST VIEW:

WEB SERVER SOFTWARE AT A GLANCE

"If you ask me what's going to happen to the Web server, I can tell you I suspect that they will become less expensive, will become more ingrained in the operating system and will only become differentiated as a separate product when tied specifically to a vertical or horizontal market," says Tim Sloane, director of Internet infrastructure research at Aberdeen Group, Inc. in Boston.

The original concept of a Web server was to be a basic HTTP server that would map pages directly to files. Now managing the Web server, managing connections, domain names and the content of the Web site have become basic functions that people expect when they buy the Web server, Sloane says. As a result, "the rush is on to put more and more into the Web server," he says.

Because of this, "trying to map the vendors and the products is a challenge," says Ted Julian, an analyst at International Data Corp. (IDC) in Framingham, Mass.

Vendors are continually trying to one-up one another by putting what were separate functions into what is now being defined as a Web server, Sloane says. "The Web server has scaled incredibly fast to encompass more and more." Sloane says the Web server market is now fragmenting. "As a result, you'll have Web servers that are specialized for small offices, for large offices, for commerce, for publishing, for managing documents, for doing groupware-type solutions and for being an integrated environment."

Analyst view, page 82

Ted Julian, International Data Corp.

Tim Sloane, Aberdeen Group, Inc.

ANALYST VIEW:
CONTINUED FROM PAGE 81

Because the market has expanded, IDC fragments the Web server market into the following types: Collaborative, Calendar, HTTP/content, Messaging, Network News Transfer Protocol/news, Proxy/cache, Certificate and Directory, Julian says. (see chart, page 86)

VENDOR POSITIONING

As with any growing/saturated market, vendors are jockeying for ownership of Web servers and browser components. Here are some of the key vendors and their strategies, according to Sloane and IDC's report on global Internet server software.

Netscape

www.netscape.com

Sadly for Netscape, last year may have been its easiest year from a sales volume perspective. Now that Microsoft is getting its act together and Lotus has moved quickly to Internet-enable and expand Notes, Netscape may find it has already picked much of the low-hanging fruit. — IDC

Netscape clearly became the company it is — not just because it sold a dynamite Web server, but because it suggests that the Web server, the newsgroup server, the mail server, the directory server and security make for a open standards-based network operating system. And that was going to challenge Microsoft. — Sloane

Novell

www.novell.com

Novell has a shot at trying to bring over its installed base, but I don't see it as a major player in the market. — Sloane

Sun

www.sun.com

Should Sun decide to extend its business more deeply into Internet server software — providing its own application and infrastructure servers, perhaps Java-based, bundled with Sun hardware — things get more interesting. — IDC

I don't think Sun could care less about Web serving, even though they have that product. They care about getting Java used as the development environment; they've come out with a Web server that directly supports the integration of Java. They'd like you to use that Web server. If you don't, it's OK

Analyst view, page 84

Web servers

CONTINUED FROM PAGE 81

static pages. Go WebServer can run on different types of hardware. It also has the software support expected of a commercial package and some convenient management tools.

Go WebServer is a good enterprise-level Web server for a company that needs only one server or needs multiple servers that run on various platforms. The technical expertise required should keep it off end users' desktops, but it's an overall good solution.

Microsoft IIS 4.0 (beta)

Microsoft
800-426-9400
www.microsoft.com

The Internet Information Server (IIS) comes bundled with Windows NT and could work well as a desktop or enterprise solution as long as NT is the only operating system being used for Web service. Because IIS runs on only one operating system, its usefulness is limited to some sites.

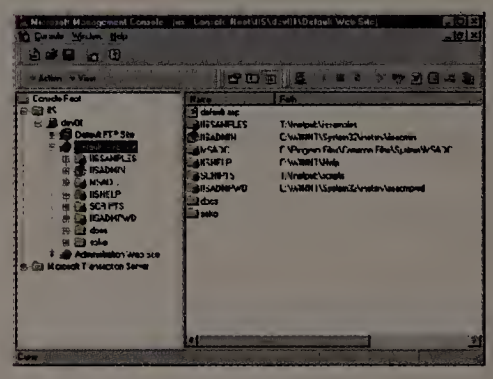
Installation, like most of the management tool interfaces to IIS, is done with a browser. Inserting the CD automatically started the default browser, which in our case wasn't Microsoft's Internet Explorer. At least with the beta version, it became evident after several failed attempts that installation with anything other than Internet Explorer wasn't going to happen. With that problem solved, it took no time at all to install the required NT Service Pack 3.0, the IIS software and an upgrade to Internet Explorer.

IIS comes with an NT-native graphical user interface (GUI) and a Web browser interface to the administration server.

The NT application certainly would come in handy for stopping, starting and restarting the server. And there was little difference between the two interfaces. There were a few actions that caused the browser and the GUI to fail with access violations, but they were easily attributed to working with a beta version of the server.

The server comes with an entire sample site, from which we quickly crafted an Active Server Page to query our sample database. I wouldn't recommend creating dynamic pages from scratch, but working from the examples provided should be easy for anyone who has some experience writing macros for Microsoft Word or Excel.

IIS' strengths are its ease of use and integration with the operating system. Anyone familiar with the NT environment won't have trouble installing, configuring or administering the server or the content. Its only real weakness is the lack of availability on other operating systems. I wouldn't recommend going out and converting to NT just to run this



server, but anyone whose needs are limited to NT should certainly consider it. And anyone who needs to have a single administrator and content manager might look at this as a good starting point.

Netscape Enterprise Server 3.0

Netscape Communications Corp.
800-638-7483
www.netscape.com

Enterprise Server's installation under NT went very quickly. A brief distraction during the installation was all it took to miss its completion. After a quick reboot, we were ready to work with the server.

Management, as with many of the other servers, was by way of a Web browser through an included copy of Navigator Gold. It took only a few clicks to configure our virtual site.

As with the other servers, the next goal was to query the test database. The tools in this case were the Live Wire Database service and hints available on Netscape's Web site. That process isn't for the novice, but any good systems administrator should be able to do the job relatively quickly.

The evaluation was completed quickly, and the management tool was very good. The other major task, the data access test,

was completed with relative ease but required some level of skill to implement. The evaluation told us that overall this is a good server, which barely got warmed up by the exercises it was run through.

Enterprise Server is another of the servers that enables the company with a variety of hardware to leverage its knowledge base.

Availability in various Unix flavors and NT allows for some consistency among the platforms. Like the other multiplatform solutions, this isn't a server I would recommend to the casual end user, because of the technical expertise needed. But that probably isn't the audience Netscape is targeting. If you're looking for a cross-platform server that's easy to manage, this certainly should be on your short list.

Novell Web Server 3.0

Novell, Inc.
800-453-1267
www.novell.com

Novell Web Server (NWS) responds to the need for a server native to the NetWare or IntranetWare environment. Like other add-on modules to NetWare, NWS uses the server INSTALL module and was a rather typical NetWare installation. NWS 2.5 comes with the IntranetWare distribution but was skipped over during the operating system installation in favor of the latest version found on Novell's Web site. NWS 3.1 and the required TCP/IP patches can be downloaded from the Novell site. After a few minutes with a file transfer protocol client and a few more for the installation, we were browsing the documentation pages that came with the default Web site.

Management tools were the typical GUI client tools with no browser-based management tools available. Using a browser to go through the documentation, and using the management tool to try out some of the numerous step-by-step examples, was easier to keep straight than using a browser for both pieces.

There are no Open Database Connectivity (ODBC) tools available for NWS. But NWS provides native access to Oracle7 databases from its NetBasic interface.

NWS doesn't provide a one-stop shopping answer to a site trying to support several operating systems. A Novell site trying to leverage its existing servers onto the Web using its in-house skills certainly should consider it worth the download to evaluate and could easily find NWS a perfect match for its needs.

NWS does what it should as a server, but companies that want to implement a

Web servers, page 84

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ANALYST VIEW:
CONTINUED FROM PAGE 82

with them as long as you use Java, and Java becomes the desktop operating system of choice to replace Microsoft Windows. — Sloane

Microsoft

www.microsoft.com

We all know what they're trying to do. They're trying to do the opposite of what Sun's trying to do. Make it Windows, make it NT and use our OLE and [Distributed Component Object Model] from the desktop. — Sloane

One of Microsoft's earliest responses to the Internet's emergence was its basic HTTP server, Internet Information Server. Initially available as a free download from Microsoft's Web site, IIS is now integrated into Windows NT. — IDC

Lotus

www.lotus.com

Lotus is trying to make it with Go WebServer. They've done a great job selling top down to companies where enterprises have decided to roll out Lotus Notes/Domino. Go Web Server is their effort to try to get in at the bottom of the market to entice people who only want Web serving to come over to Lotus so they can be brought into the Lotus Notes fold. — Sloane

[Lotus'] quick move to the heart of Internet standards is quite a feat for a company that was severely threatened by alternative Internet-based products last year. — IDC

Apache

www.apache.org

I love Apache. It shows the power of getting developers on board early and locked in to your platform by distributing the product free and getting people coding to it. You've got all these people who know how to work with it. It's hard to move to some other platform. — Sloane

O'Reilly

www.ora.com

O'Reilly's goal is to generate loyal customers and maintain them by staying very attentive to their needs. Lately, it has felt the heat from Microsoft as the Redmond titan rolls out its Internet products. But O'Reilly aims to carve out a niche by delivering a good product with additional features that install easily and perform well. — IDC

Anybody who's looking at a low-end, low-energy effort to get a Web

Analyst view, page 86

Web servers

CONTINUED FROM PAGE 82

Web site probably shouldn't switch to NetWare or IntranetWare just to get the server.

Oracle Web Application Server

Oracle
800-633-0596
www.oracle.com

Oracle's Web Application Server was a joy to work with. With its browser-based management tool, there was very little to do from the command line, short of starting the server software.

Installation wasn't a problem, because the Web server comes preinstalled. The installation actually loads two servers that run independently. One server is for administration pages, and the other is for standard Web pages.

Once the administration server was running, it took no time to add a virtual host to the listener and begin adding our own content. In this case, the content was a page that contained a specially formatted uniform resource locator to access our database. It should come as no surprise that Oracle made database extraction rather trivial. Because the server uses specially formatted HTML to recognize the database requests, anyone familiar with writing HTML shouldn't have a problem creating dynamic pages.

Oracle provides several extensions called "cartridges" that plug in to the server to add capabilities. In our case, it was just a matter of configuring the ODBC cartridge and then browsing over to the page we had created. One of the few manual edits of configuration files we did was to add a reference to our database in the ODBC configuration file.

By far, the strengths of Oracle's Web server are its ability to easily access different types of databases and its availability on different operating systems. Oracle Web Application Server also has easy-to-use administration tools and makes it easy for the end user to create content. We were very impressed. Oracle Web Server would certainly be our choice given the areas evaluated. To temper our enthusiasm, remember that cost wasn't one of the areas evaluated. Oracle Web Application Server is a good answer for the enterprise down to the desktop, but the server's cost should be factored in.

O'Reilly WebSite Pro

O'Reilly & Associates
800-998-9938
www.ora.com

WebSite Professional, like most of the other packages, comes with all you need to run an enterprise-level server but is simple enough to be run by an individual for use on a personal workstation.

The installation runs from a CD and includes the server, a sample site with numerous examples and the standard edition of Cold Fusion. You can install it as an NT service, task-bar tray application or stand-alone application. That adds some flexibility over the other servers.

The management tools seemed a bit awkward at first because of a slightly different style from the other servers. Everything needed to administer the server is available from a tabbed "properties" style dialog box available from the task-bar tray if the server is installed that way or from a menu added to the task bar. We added a virtual server using this property sheet.

Working from the example templates and using the GUI management tools made database connectivity easy work. If Cold Fusion isn't your preference, WebSite Professional supports many other APIs, including Active Server Pages.

WebSite Professional runs on Win-

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		Apache 1.2	Domino Go WebServer 4.6 (beta)	Microsoft Internet Information Server 4.0 (beta)	Netscape Enterprise Server 3.0
OPERATING SYSTEM(S) SUPPORTED		Unix (various) and Windows NT (beta)	Windows NT and 95, OS/2, System 390, Unix (various)	Windows NT	Unix (various) and Windows NT
HTTP		Version 1.1	Version 1.1	Version 1.1	Version 1.1
INSTALLATION		Good	Excellent	Excellent	Excellent
CONFIGURATION MANAGEMENT	BROWSER	Third party	Very good	Very good	Excellent
	GUI	None	None	Excellent	None
DOCUMENTATION	ONLINE	Very good	Very good	Excellent	Very good
	PRINTED	None	N/A*	N/A*	Good
SECURE SOCKETS LAYER SUPPORT		Third party	Version 3.0	Version 3.0	Version 3.0
DYNAMIC PAGES	KEY API/TOOLS	Python, Tool Command Language, C, C++, OS-specific	Go WebServer API, Java Speech, Netscape Server API, Internet Connection API	Active Server Pages, Internet Server API, Python, Tool Command Language	Netscape Server
	PERL	Yes	Yes	Yes	Yes
DATABASE SUPPORT		ODBC (Third party)	ODBC, Oracle, Sybase, DB2	ODBC	ODBC, Oracle, Sybase, Informlx, DB2

* Not available with beta release

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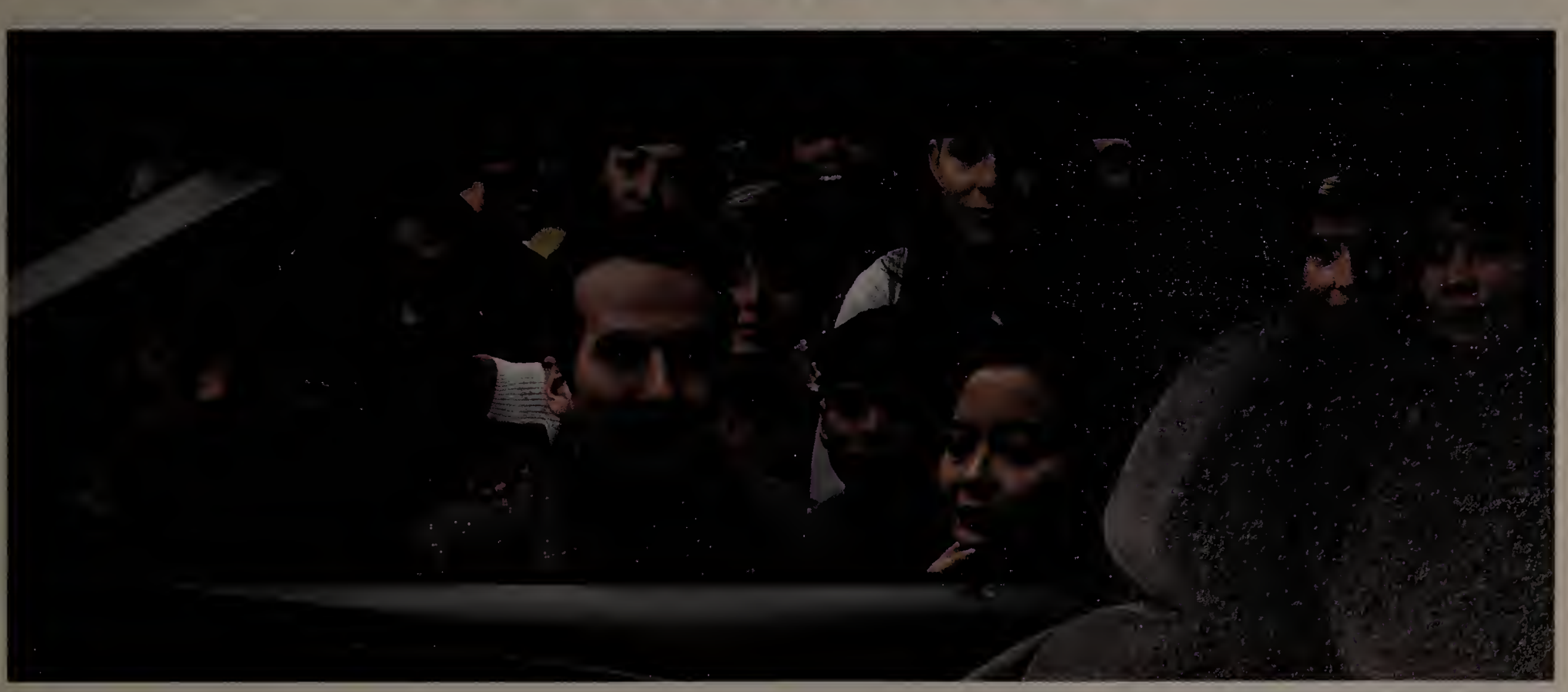

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ANALYST VIEW:
CONTINUED FROM PAGE 84

server up can use the O'Reilly box and get some excellent support from O'Reilly in the process. I don't see them offering value-add in any particular vertical or horizontal market. So I think — if I'm accurate on the trend of these things being built in to operating systems and vertical and horizontal solutions — that will slowly start to put pressure on O'Reilly, as well. — Sloane

Oracle

www.oracle.com

Oracle's WebServer 3.0 consists of several HTTP servers tightly integrated with an Oracle7 database. Data retrieved from the database is formatted on WebServer into HTML for dynamic transmission to a Web client. — IDC

National Center for Supercomputing Applications

www.ncsa.uiuc.edu

They haven't been keeping up really well with the latest and greatest in the Internet base. But they do have a nice little market share. — Sloane

CHECK OUT THIS SITE

Netcraft, an Internet consulting firm in England, tracks Web server software usage on Internet connected computers. It collects and collates all the host names that provide an HTTP service it can find. It systematically polls each one with an HTTP request for the server name. In a poll it conducted last month, Netcraft received responses from 1,269,800 sites. The following are the top servers cited:

Apache
546,990

Microsoft IIS
209,102

NCSA
67,338

Netscape: Enterprise
63,888

Netscape: Commerce
37,315

Netscape: Communication
33,549

See *www.netcraft.com/survey*

"Netcraft goes about their business in a very direct way," Sloane says. "They go crawl the 'net and take a look and see what kind of servers are out there. They do an excellent job of being candid about what they can and can't do."

— Compiled by Cathleen Gagne

Web servers

CONTINUED FROM PAGE 84

dows 95 and Windows NT, making it available to just about every desktop PC. For the small company that needs only one or two servers or the company that needs all or most of their desktop machines running a server, this may be the server.

It would be easy to administer the server and the content.

It also could be the answer for a larger NT-only site. Anyone who needs support for multiple hardware types or with even a slightly complex setup probably should look elsewhere.

Sun Web Server

Sun Microsystems
415-960-1300
www.java.sun.com

Sun Web Server is yet another response to the growing need to distribute information from just about every workstation on the Web.

Like other operating system vendors, Sun packages its Web server with the operating system. Starting with Solaris 2.6, it will be distributed with the operating system. For those unwilling to wait, it can be downloaded from Sun's Web site.

The server came as a collection of files with several Sun format packages and a README in postscript format that contained installation instructions.

Working through the installation instructions was straightforward, and anyone familiar with the Solaris package tools will feel right at home.

Once the Web server is installed, the scripts are in place that start the server once the machine is restarted.

Manually running the start-up scripts also will get the server started and the installation instructions describe that process. A browser-based administration tool handled the configuration needs, including setting up a virtual server.

But the tool seemed more like an add-on than something integrated with the server. Room for improvement exists. Until then, there's always manual edits.

This could be the budget answer for companies or individuals looking to run a Web server on their existing Sun equipment. Sun's Web Server has promise but isn't quite the enterprise solution and shouldn't compel the non-Sun user to switch just for the Web server software. □

Pike is a testing engineer at Client/Server Labs in Atlanta (www.cslinc.com), a primary client/server test partner of Computerworld.

WORLDWIDE INTERNET SERVER SOFTWARE UNITS AND REVENUE BY SOFTWARE TYPE

TYPE	SHIPMENTS	REVENUE
HTTP/content	500,000	$57M
Messaging	150,810	$34M
Collaborative	55,000	$18M
Proxy/cache	6,000	$3M
NNTP/news	4,000	$4M
Directory	3,000	$6M
Total	718,810	$122.7M

Source: International Data Corp., Framingham, Mass.

		Novell Web Server 3.0	Oracle Web Application Server 3.0	O'Reilly WebSite Professional 2.0	Sun Web Server 1.0
OPERATING SYSTEM(S) SUPPORTED		NetWare/ IntranetWare	Unix (various) and Windows NT	Windows NT and Windows 95	Unix (Solaris)
HTTP		Version 1.1	Version 1.1	Version 1.1	Version 1.1 (partial)
INSTALLATION		Fair	Preinstalled	Excellent	Fair
CONFIGURATION MANAGEMENT	BROWSER	No	Very good	No	Fair
	GUI	Good	No	Good	No
DOCUMENTATION	ONLINE	Very good	Excellent	Very good	Good
	PRINTED	Installation only	Good	Excellent	Very good
SECURE SOCKETS LAYER SUPPORT		Version 3.0	Version 3.0	Version 3.0	Version 3.0
DYNAMIC PAGES	KEY API/TOOLS	NetBasic	PL/SQL, ODBC, live HTML	Active Server Pages, Web Site API	None
	PERL	Yes	Yes	Yes	Available
DATABASE SUPPORT		Oracle native	ODBC, Oracle and more	ODBC	ODBC (Third party)

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In Depth

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PRIVATE LIVES?

PUBLIC RECORDS

In today's networked world, is personal information too easy to access?

When policy was defined for gaining access to public records, accessing data generally meant going to Town Hall or filling out a form and waiting by the mailbox. The Internet has changed all that. Today, extremely personal data is just a mouse click away. And in many cases, it's resold by businesses — even branches of government — without permission.

Has technology changed the meaning of "public" so much that it's time to rethink public records access? Or is the Internet simply one more medium that shouldn't affect longstanding views on what's public and what's private?

To get opposing points of view, we invited Robert Wientzen and Lauren Weinstein to engage in a virtual roundtable. Wientzen heads the Direct Marketing Association. Weinstein is a longtime privacy advocate. Each responded to the same series of electronic-mail questions. Their responses were edited for brevity and content.

LARA JO REGAN

Weinstein is president of Vortex Technology in Woodland Hills, Calif. He has been active on many issues involving technology and society in the Arpanet/Internet community since the early 1970s. He created the Privacy Forum in 1992. Weinstein is a member of the Association for Computing's Committee on Computers and Public Policy. His Internet address is lauren@vortex.com

JOHN RAE

Wientzen is president and CEO of the New York-based Direct Marketing Association. He guides the association's government relations, public relations, consumer affairs and all operating functions. He has worked in marketing for more than 30 years, including a 27-year career at Procter & Gamble Co. Wientzen is a frequent industry speaker.

CW: Should the U.S. revisit regulations on accessing public records?

WEINSTEIN: Most definitely. Technological advances of a wide variety, not just the Internet, have resulted in a qualitative change in the data we have traditionally viewed as public record. When such information was just sitting on index cards in the back room of the county courthouse, the potential for misuse of the data was limited by sheer logistics. But with the expanding reach of database systems and vast communications networks (including but not limited to the Internet), this data has begun to be viewed as potential profit centers by many municipalities. A range of commercial applications for which the data was not originally collected, and to which many people object, have become all too practical.

WIENTZEN: The relative ease of access to public records should not govern what information is available to the public. The purpose of making public records available remains the same regardless of the means of accessing them. Public information is used for many purposes, including law enforcement, demographic research and civic planning. Marketers use the records to provide consumers with information, products and services appropriate for that individual's needs. Self-regulation practices of marketers, current government regulation regarding fraud and illegal activity and consumer advocacy groups work together very effectively to provide protection of information. It would be a great irony if the most significant means of access to information developed in this millennium were used as an excuse to further restrict access to public information.

Private lives, page 90

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PUBLIC RECORDS

CONTINUED FROM PAGE 88

CW: Should information that is gathered by the government — whether local, state or federal — be allowed to be repackaged and sold for other purposes, such as data mining or direct marketing?

WIENTZEN: Information on a single individual is not useful to a marketer. Marketers use aggregate information regarding consumers' preferences and buying habits to form groups of consumers with like interests and tastes. Information used for data mining or direct marketing is used not only for the benefit of companies that use the information but also ultimately for the benefit of the consumer.

WEINSTEIN: Such information should not be available for nongovernmental uses without the explicit prior permission of the persons whose data would be released. If individuals wish to participate, that's well and good. But individuals who have provided information in the course of doing business with municipalities — or commercial firms — should not be forced to become participants in such marketing plans.

WIENTZEN: One of the benefits of the Information Age is the ability to deliver relevant information to individuals depending on their personal preferences. That is why the use of group information by interest is so important to both marketers and consumers.

CW: Should consumers be presented with a privacy option before they divulge personal information?

WEINSTEIN: Consumers should absolutely be able to indicate at the time information is collected whether they wish that data to be divulged for commercial applications or uses other than those for which they were informed it was originally collected.

WIENTZEN: The Direct Marketing Association (DMA) has a long history of supporting the rights of consumers to opt out of the marketing process. We firmly believe consumers should be made aware of the ways in which information about them is being gathered and used and that individuals should be given the opportunity to decline.

CW: Should there be any government regulation of such information? If so, at what level?

WIENTZEN: The DMA does not feel there should be any regulation of such information. There are many checks and balances that secure individuals' privacy protection: industry self-regulation and peer pressure, fraud regulation by government agencies and watchdog vigilance by consumer advocacy groups.

WEINSTEIN: While the potential for undesirable side effects from increased regulation does exist, it seems quite clear that self-regulation by the industries involved in dealing with this information is not sufficient protection.

Marketing organizations believe that privacy is not a right; it's a preference.

Only federal legislation establishing uniform national standards could have a practical impact. Such legislation should be part of a top-to-bottom look at privacy issues in this country. Right now, it's rather like the Old West — pretty much anything goes. That needs to change. We need to start establishing who has what rights to which sorts of information and to what extent individuals should have the right to access, correct, control and restrict the way information they provide is used and distributed by different entities. The laws are woefully inadequate to address the reality of the way personal data is now being manipulated, packaged and sold.

CW: The DMA has an extensive list of privacy principles. How well do you think such self-policing works?

WIENTZEN: We believe it works quite well, but we are committed to making it work even better. It's in our commercial interest to see that privacy self-regulation works. Direct marketing, more than most other commercial mediums, requires the trust of the consumer from the first transaction to work.

The DMA has a self-regulating process to investigate complaints. The Committee on Ethical Business Practice, comprising 15 executives from DMA member companies, meets 10 times a year to investigate both member and nonmember companies' business practices. The committee works with companies to help them understand and adhere to guidelines. The process has been very successful in promoting consumer protection and increasing confidence.

WEINSTEIN: Such principles are interesting in an academic sense, but they have no real teeth and are obviously insufficient to do the job. Outside of the fact that they don't go nearly far enough to protect individuals' privacy, there is no way of requiring every database and every marketer to follow those principles — they aren't all members of the DMA. And the number of databases out there that can be used for marketing and other commercial purposes is vast. Most people are busy enough without trying to stay abreast of the ways in which information about them is being distributed and used.

LARA JO REGAN

"The laws on the books are woefully inadequate to address the way personal data is now being manipulated, packaged and sold."

CW: Many argue that the Internet is merely the latest medium and that existing privacy laws and regulations are sufficient. Is this true? If you believe the Internet justifies new laws and regulations, why?

WEINSTEIN: The Internet is the latest medium, but existing privacy laws and regulations are not sufficient. They wouldn't be sufficient today even if the Internet did not exist. The Internet, through no fault of its own, merely magnifies and accelerates effects that were already occurring; it is not itself the problem.

For example, when the state of Texas' motor vehicle records were made publicly available on the Internet — allowing anyone to do complete information look-ups based on name, address, license number or other data points — it was a horribly bad idea. It would still be an awful idea even if the Internet was not involved and some other access method, even regular postal mail, was the access method.

The real issue is who should have access to that information and under what conditions, not so much whether it's being accessed over the Internet.

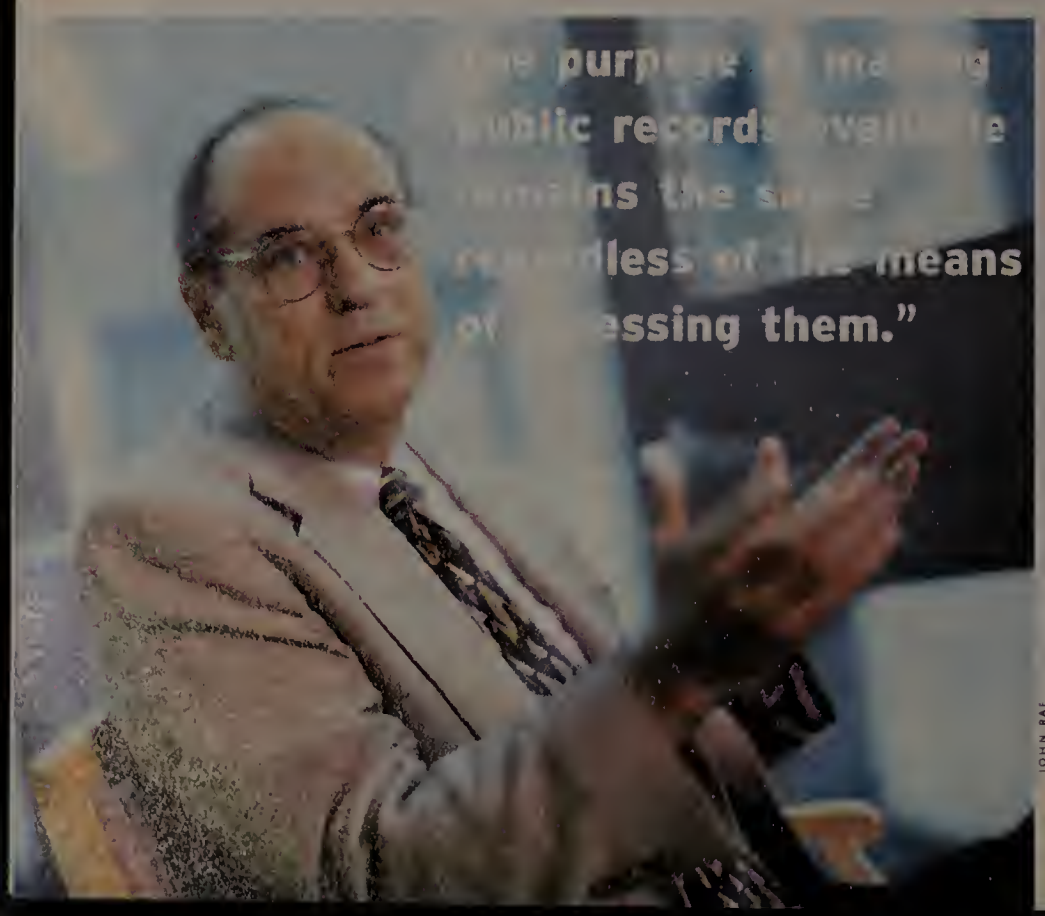
WIENTZEN: The current level of legislation governing privacy protection is appropriate, and new laws are not necessary. I believe the system of self-regulation will function well as the Internet becomes a more common marketing tool.

CW: Other comments?

WIENTZEN: Restrictive laws regarding the collection and use of information will squelch the possibilities of the Internet providing both consumers and marketers with access to information and services. If marketing activities are severely limited, further investment in the infrastructure will also be limited.

WEINSTEIN: Public record data can be abused in manners that can destroy persons economically or even threaten their lives.

We need to sit down as a society and start striking a reasonable balance between the legitimate commercial desires of marketing organizations and the very real right to individual privacy that, I firmly believe, the vast majority of Americans strongly feels does exist. □



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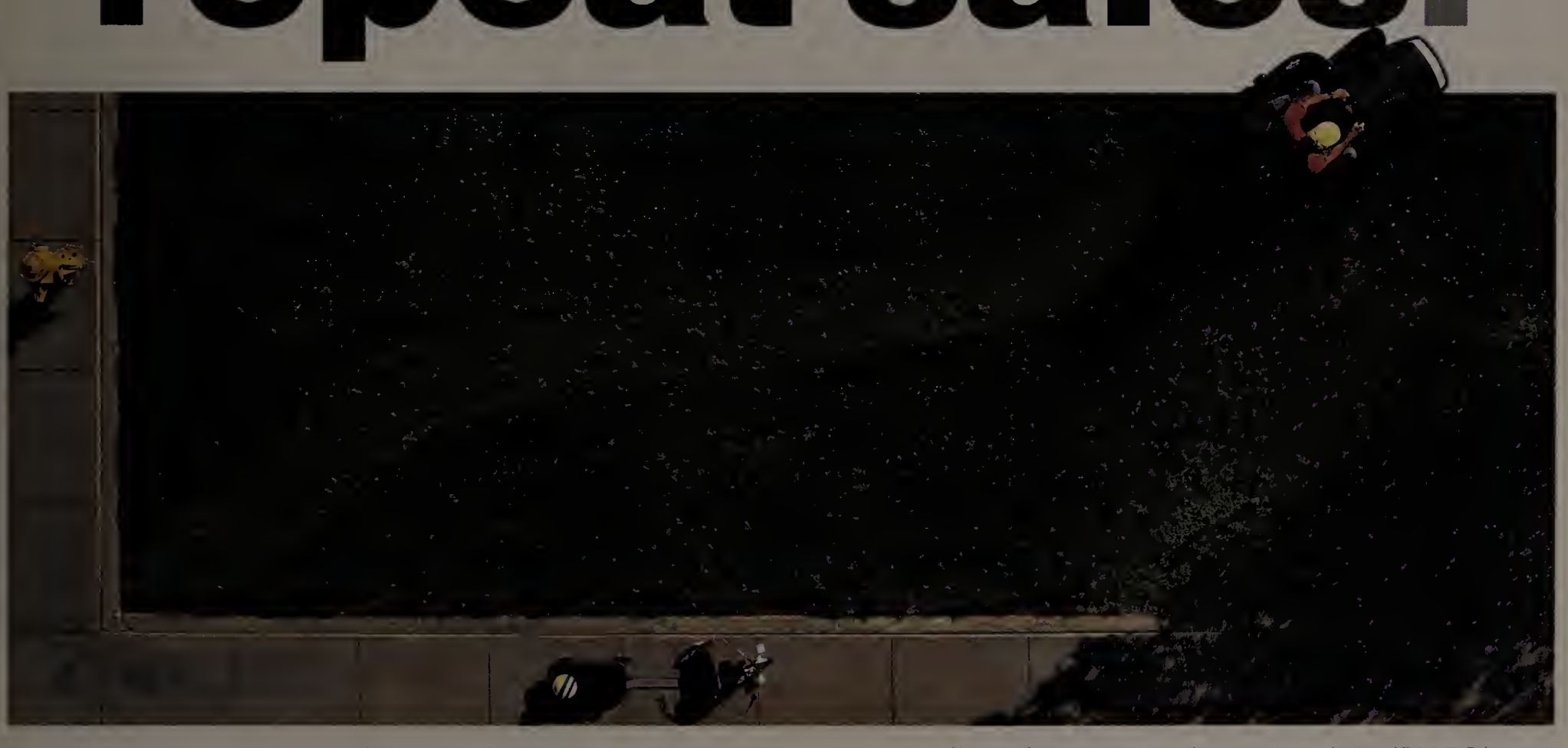

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IT Careers

Webmaster Who

Though hiring managers need something to judge Internet expertise, it isn't easy to know what Web certifications really measure. Here are two views of their value and their shortcomings

By Steve Alexander

Daniel Meeks, a vice president at Bank of America in Chicago, operates an intranet for "financial engineering risk management," which involves pricing and hedging in connection with interest rates, commodities and equities. He is a certified webmaster and a strong proponent of certification.

Getting what you pay for

I like certification programs because, without them, you never know what you're getting. If you know the certification program for Novell, Inc. or Microsoft Corp. engineers, then you know what a certified person will be able to do.

It's true, as some critics of certification say, that the job of webmaster isn't well-defined. But if you're the person who is hiring a webmaster, you should find out what each candidate's certification program comprises. Once you understand a webmaster program's curriculum, you'll be sure that the people it certifies know about ports, TCP/IP, subnet masking and the various vulnerabilities in the network.

"Once you understand a webmaster program's curriculum, you'll be sure that the people it certifies know about ports, TCP/IP, subnet masking and the various vulnerabilities in the network."
– Daniel Meeks

It's no different from hiring someone with a computer science degree from a university. If the degree is from Purdue, that's a good university. But if the degree is from somewhere less known, then the person who's hiring has to find out what that university is like.

The certified webmaster I'm talking about is a technical person — a webmaster engineer — who probably is a database administrator, an engineer, a systems administrator or a combination of all three. That's the only person you need to have certified. You don't need a World Wide Web marketer or graphical user interface person certified because those positions involve more free-form work.

Some say certification doesn't mean much because Web technology changes so fast, it's difficult for skilled people to keep up. But the Web infrastructure isn't changing as fast as the products that work off it.

There is a base of infrastructure knowledge you need to know that is fairly low level and isn't changing or is changing much slower than things such as Web languages and Internet server technology.

When it comes to this technology, Web certification represents a baseline knowledge of that infrastructure: You need to know TCP/IP, IP addresses, stacks, domain name service, security, ports and how a basic Internet server works.

That's the knowledge I find missing in most webmasters. That's because if you buy Windows NT Server, all those things are done for you. Certification teaches the basic stuff people haven't had to learn.

If you are running a small information systems shop, maybe you can't hire a person to do just the technical piece. But if you hire a certified, technically capable person, he can run the technical aspects of the shop and maybe pick up the other stuff.

If you aren't a certified webmaster, it doesn't mean the door is closed. But being certified makes it a lot easier to get a job.

I don't think being a certified webmaster automatically gets you more money. If that were true, there still would be only an initial salary boost. Once you come into a shop, salaries are driven on performance, not potential.

I also think certification is more important for new webmasters than those already on the job. I don't think that in the near future you'll see existing webmasters going back to classes to get certified.

The webmaster associations will have to get together and agree on a certification program that fits everyone. Unix happened that way — you had to run System Five or die. But Unix uniformity was business-driven. Among webmasters, there is no urgency for uniformity. Maybe there will be at some time in the distant future.

JEFF SCIORTINO

Bank of America's Daniel Meeks

certifications: needs 'em?

JOHN SOARES

The Webmasters' Guild's Jayne Mason

[redacted] is the director of the Webmasters' Guild, a [redacted]-member, [redacted] association in Cambridge, Mass. The Guild's roster is concentrated in Silicon Valley and Boston. Mason can be reached at jmason@[redacted]

Everybody does it different

At the Webmasters' Guild, we aren't anticertification. In fact, we're talking to people about endorsing their courses on a nonexclusive basis. But our members and executive committee believe that substantive issues surround certification.

The first problem with certification is how to define a webmaster. Is it a technical person who handles a World Wide Web site, or is it someone who handles graphic design, marketing or business strategy for a Web site?

The confusion about the definition of webmaster, plus the many programs that have arisen throughout the country for webmaster certification, has created a massive problem: Certification from one program isn't the same as certification from another. When potential employers look at a webmaster certificate, it isn't clear to them what that certificate means.

Another problem of certification is that many programs don't even offer the option of a business background, and that is something that should be taught at a basic level in a basic certification program.

We believe a webmaster must possess knowledge of fields as diverse as network configuration, interface and graphic design, software development, business strategy, writing, marketing and project management. The function of a webmaster encompasses so many areas, the position often is held by a team rather than one person.

As a result, we believe people can do many different tasks and still be identified as a webmaster. I find it entirely conceivable that someone could learn all those disciplines, but it would take a lot of time and effort, and it isn't something that could be done in a single certification program.

Webmaster certification has come into being because of the unbelievable dearth of people in this field. It's the explosion of the Web — not the shortage of people with college degrees — that's causing that dearth. Employers are hiring like mad, and there aren't enough candidates, particularly on the West Coast and in some places on the East Coast.

Most of the certification programs we encounter are vendor neutral, because that's what most people seem to want. There's no telling which browser will win or whose tools will be the most useful.

If a widely accepted certification program for webmasters is going to happen, the industry needs to look at webmasters as a set of professionals such as doctors or attorneys and create a set of national standards all organizations can agree to. If everybody can agree, we can set up something similar to a bar exam.

But there are barriers to national standards. This is an industry that historically has been highly unregulated; its members are Web people who are very much against regulation in any form.

Also, certification faces the practical problem that Web technology is exploding. By the time a person graduates with a computer science degree, the degree is obsolete. In webmaster certification, the problem is even worse. No one can seem to keep pace with everything that's happening.

"Certification from one program isn't the same as certification from another. When potential employers look at a webmaster certificate, it isn't clear to them what that certificate means."
– Jayne Mason

So, webmaster certification standards would be nice, but is anyone going to do it, and does anybody want it? I think webmaster certification is going to take one of two paths: The three or four professional Web organizations out there will get together and say, "Here is what basic certification means, and here is a national standard," or the professional organizations won't agree, and certification programs will continue without any standards.

A new industry is going through birthing pains. I'm not sure what's likely to happen. □

Alexander is a freelance writer in Edina, Minn.

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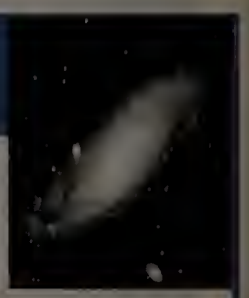

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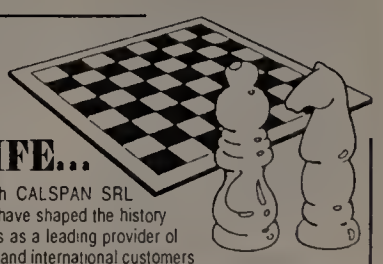

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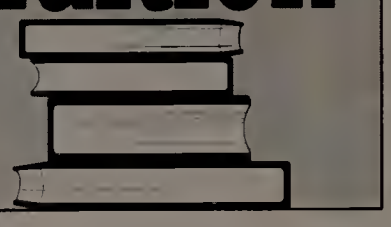

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Sounding the ALARM

From stalking Barnes & Noble to advertising on the Howard Stern show, hiring managers are near panic in their search for IS talent

By Jill Vitiello

You think Rocky had a tough time training for his first big fight? Fuhgeddaboutit! That was a piece of cake compared with how hard information systems hiring managers and human resources recruiters are battling to fill IS jobs in Philadelphia and southern New Jersey.

They're buttonholing techie types in bookstores, running contests and offering cash to anyone who can lure qualified IS professionals to join their companies.

They may be a bit dazed by their nonstop recruiting and the beating they're taking in the market, but you've got to give them credit for going the distance. These IS managers and recruiters have heart.

Philadelphia: Beemers and bucks

"WE'RE NETWORKING with everyone we know," says Lori Desiderio, an SAP recruiter at Price Waterhouse LLP in Philadelphia. "It's like that movie, *Six Degrees of Separation*. Eventually, you run into someone with the right skills who's interested in a job."

Besides working with headhunters and placing advertisements in newspapers, magazines and on the Internet, Price Waterhouse will retrain IS professionals in SAP. Sign-on bonuses are routine.

"It's somewhat like baseball, although maybe the figures are not as high," Desiderio says.

The company also gives $3,000 to any employee who refers a successful technical candidate. Employees who recruit three or more IS professionals have their names entered in a drawing for a new BMW.

OK, sure — you'd expect a tough fight when recruiting SAP talent. But in Philadelphia and its suburbs, even Cobol programmers are demanding — and getting — six-figure starting salaries, says Ed Thomas, president of Professional Search Associates, Inc. in Malvern, Pa. Companies that can't offer such a rich purse are resorting to what Desiderio calls "creative recruiting."

In a startling departure from previous years, even senior-level IS jobs are going begging in Philadelphia. Aramark Group, Inc. is searching for several vice presidents of MIS for its various lines of business, says Ken Nelson, senior vice president of MIS and chief information officer. He's hired a retained search firm to fill those positions and is using a contingency firm to recruit midlevel IS professionals. (Retained firms are paid a fee for conducting a search; contingency firms are paid a commission if they find a successful candidate.)

New Jersey: Shock jock and sticker shock

ACROSS THE DELAWARE RIVER in southern New Jersey, the situation is more severe. The region competes with large corporations in Philadelphia and northern New Jersey for scarce IS human resources. Smaller companies in southern New Jersey sell IS recruits on dynamic environments in exciting industries.

Bluestone Software, Inc., a software and consulting company in Mt. Laurel, N.J., that has about 270 employees, advertises IS openings on the controversial Howard Stern radio program. "We looked at the demographics and realized the people we need to attract don't read the newspaper, but they do listen to Howard Stern," says Amy Naples, director of human resources. Bluestone bagged five new hires using the tactic, she says, despite some initial reservations held by the "penny loafers and polo shirt" set at Bluestone.

The company has also extended its Cool Cash employee referral program to anyone from outside Bluestone who recommends a qualified IS candidate who is hired. Participants can earn $1,000 for each new hire. Bluestone seeks programmers with Java, C and C++ experience.

Naples also has been known to strike up conversations with techies browsing in the IS section of the local Barnes & Noble bookstore and to stick her business card in the IS books on the shelves.

The casino industry reigns supreme in Atlantic City. There, IS opportunities focus on converting legacy systems and applying new technology.

Caesar's is in the midst of a system conversion, and human resources manager Eugene Clark says he is having trouble locating professionals who are AS/400 experts. He recently brought in a recruiter who is establishing links to local schools. Down the boardwalk at the Claridge Casino Hotel, Art Lucchesi, vice president of MIS, recently filled two of three open IS positions through the most conventional method — a newspaper ad.

"For some reason, technical people feel they must use headhunters to get jobs," Lucchesi says. He calls executive recruiters' 25% commissions outrageous and says he abhors their tendency to pirate people out of IS shops. "The casinos always have IS job openings, and programmers go from one to the other." □

Vitiello is a freelance writer in East Brunswick, N.J.

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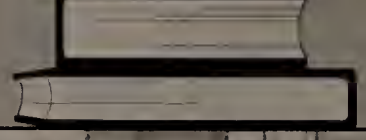

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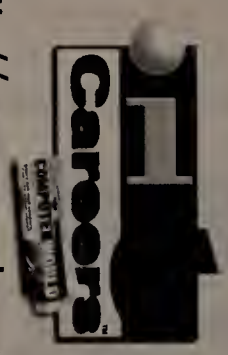

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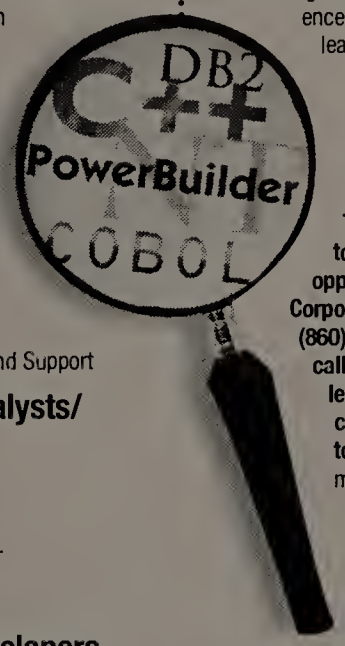

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Software engineer with 3 (three) years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 3 years of experience using SYBASE, UNIX, C and S-Designer and at least one year experience with T-SQL. Analyzes s/w reqs. and performs tesling and user training after development. Extensive travel and frequent relocation. Bachelor's degree in engineering, physics, mathematics or computer science. $65,000/yr. 40 hours/wk., 9:00 - 5:00. Send resumes, listing job order number 8026992, to Mr. Tom Rusnack, Manager, Speers Industrial Park, 10 Paluso Dr., P.O. Box 210, Charleroi, PA 15022.

Programmer Analyst-New Orleans, LA-Design, develop & maintain business applications on UNIX based hardware with ORACLE 7. Use SQL*Forms, Reports, PL/SQL, Pro*C, stored procedures & shell programming. Reqs Bach in Comp. Sci./Apps or Physics and 2 yrs exp in job offered. M-F, 8AM-5PM. 40 hrs/wk, $61,300/yr. Contact LA Office of Employment Security, Job Order# 689829, 1530 Thalia St., New Orleans, LA 70130.

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Software engineer with 3 (three) years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 3 years of experience using Oracle, Developer 2000, UNIX and one year with Filenet. Analyzes s/w req's. and performs testing and user training after development. Extensive travel and frequent relocation. Master's degree in engineering, physics, mathematics or computer science. $80,000/yr. 40 hours/wk., 9:00 - 5:00. Send resumes, listing job order number 1013471, to Mr. Greg Schwing, Manager, Office of Employment Security, 2100 Wharton St., Pittsburgh, PA 15203.

Consultant needed for computer consulting firm located in Oak Brook, Illinois. Job duties include: Plan, design, code, test and document computer programs applying knowledge of design and programming techniques. Identify, evaluate, and define user requirements for new or modified systems. Design and develop system specifications and program specifications for detailed coding. Involved in object oriented technology. Use C, C++, and SQL for programming and Access and SQL Server for database storage. Use UNIX and Windows NT operating system. Applicant must have B.S. degree in Computer Science. A foreign degree is acceptable if determined to be equivalent by a recognized authority. Applicant must also have 2 yrs. exp. in the job duties described above or as a Programmer/Analyst which includes 2 yrs. exp. w/C++ and Object oriented technology. 40hrs/wk, 8:00 am - 5:00 pm, Mon-Fri, $48,000/yr. Send 2 copies of both resume & cover letter (NO CALLS) to: Illinois Department of Employment Security, 401 South State Street - 3 South, Chicago, Illinois 60605, ATTN: Sheila Lindsey, Ref# V-IL 17454-L. Must have proof of legal authority to work permanently in the U.S. AN EMPLOYER PAID AD.

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MR Foundation Software Engineer, Kernel Environment: Monday through Friday, 8:00 a.m. to 5:00 p.m.; 40 hours per week; $46,000 annually. Required is a Master of Science degree in Electrical Engineering or Computer Science; two (2) years of experience in the position being offered (i.e., MR Foundation Software Engineer) ***OR*** two (2) years of experience in the related occupation of Software Engineer or Programmer. As part of the required experience in the position being oftered or in the related occupation, the applicant must have had experience with sheil script in Bourne shell, C shell and Korn shell; had experience with C, C++, and Objective C; had experience with device driver writing in UNIX environment; and had experience with Kernel coding and debugging and programming in Perl and Awk. Analyzes, designs and develops advanced software systems for MR (Magnetic Resonance) applications for worldwide manufacturer of medical diagnostic equipment. Designs, develops and maintains quality foundation layer (low level, operating system level) software, including writing and maintaining device driver for the attached peripherals on UNIX system, adding modifying system calls in the UNIX kernel environment and kernel debugging. Participates in various software design and development activities relating to UNIX interprocess communication protocols, events and signal management, system error logging capability, and system startup, monitoring and shutdown capabilities. Drives performance prediction/analysis of system loading and support development environment tools used. Interested applicants submit two (2) resumes to: DWEALC, c/o: Mike Brooks, P.O. Box 7972, Madison, Wisconsin 53707-7972. Case # C100192 AN EMPLOYER PAID AD.

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Design and develop embedded electronic mobile system for organizers, pagers and calculators, utilizing knowledge of microprocessor, assembly programming and embedded microprocessor software design. Evaluate and characterize new product prototypes in both laboratory and test environments. Identify and correct any design deficiencies. Perform programming, test system circuit design, computer simulation, implementation and enhancements utilizing digital and analogy/RF electronics, and software knowledge. Create complex electronic and software/operating system for mobile solution. Requires a Master's degree in Electrical Engineering, Computer Science or Computer Engineering and one year experience in job oftered or one year related experience in software and electrical systems development, embedded microprocessor, and real time embedded operating system design. Or, will consider a Bachelor's degree in Electrical Engineering, Computer Science or Computer Engineering and three years experience in lieu of Master's degree and one year experience. Background must include at least one year experience in 16 bit microprocessor assembly language programming. 40 hour work week. $45,000 per year. Apply at the Texas Workforce Commission, Dallas, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas. 78701, Job Order # TX7858137. Ad Paid by an Equal Opportunity Employer.

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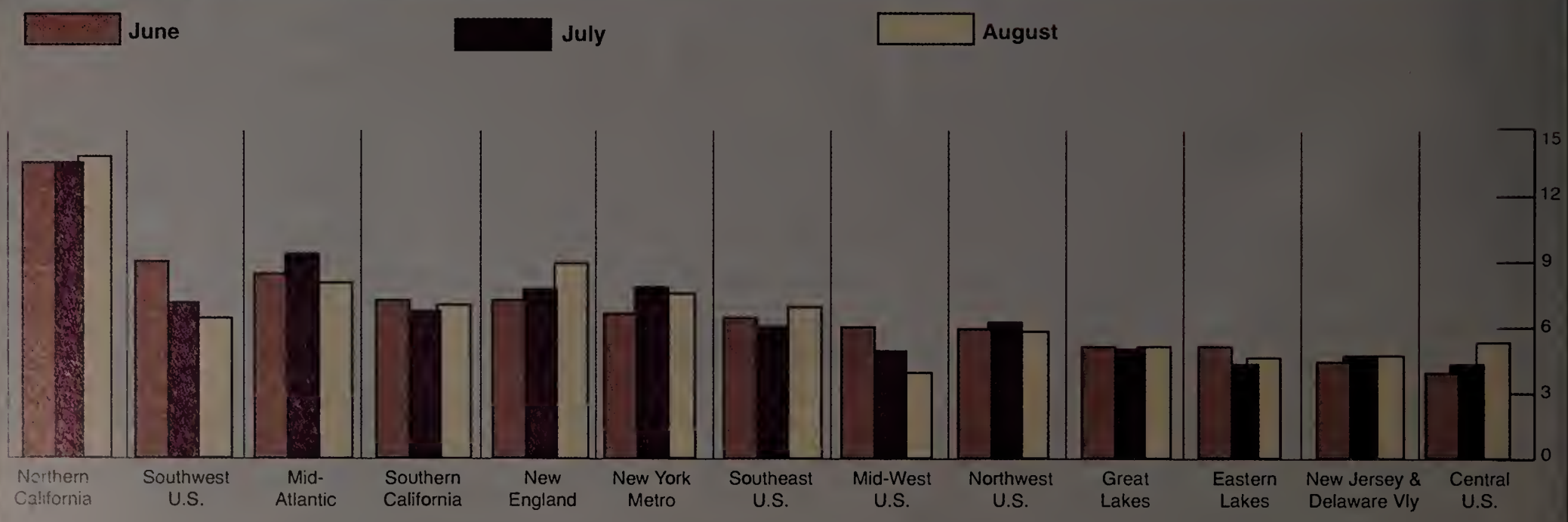

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Transtech Launches admiNTeam™

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Transtech, Inc. has launched its focused WINDOWS NT System and Network Administration Services Team nationwide. The "admiNTeam™" is positioned to offer the best and broadest range of NT services nationwide. Transtech is one of the only organizations worldwide with such a unique range of NT-centric services. The group is focused on providing NT System and Network Management Services ranging from long-term onsite NT Administration Contract services to offsite telephone support. A Microsoft Solution Provider for the last three years, Transtech already has in place strong BackOffice expertise and Microsoft Certified Windows NT experts. The admiNTeam™ will have a big jumpstart from this existing depth of NT expertise. The admiNTeam™ can help NT sites migrate or integrate with Netware, setup and maintain NT based Web Servers, Microsoft Exchange Servers or NT Application Servers.

"We can come in and manage your NT environment while providing a complete knowledge transfer to your staff." The range of services include a retainer-based service contract which guarantees a specific response time. For example, a client who has a single NT Server with 30 users could opt for a 300 hour annual retainer and have a guaranteed 4-hour response time to any service calls. "On the other hand, most of our Fortune 2000 clients need full-time onsite support and we have the best team of NT experts in the business who are great at that," says Broom.

The Transtech admiNTeamTM can be reached at 1.888.NT.ADMIN (682-3646) ext. 239 or at ntadmin@trans-tech.com. Further information about Transtech can be obtained by visiting our web site: www.trans-tech.com.

Champion Announces Breakthrough In Autoloading of CD-Rs

On May 19, at the SIGCAT trade show in Virginia, Champion Duplicators, Inc. responds to the growing demand of CD-R duplication in announcing a new tray based duplication system – the Stellar^2. Champion's industry experience is evident in the creation of this product and it is expected that the Stellar^2 will be the new standard in the duplication technology.

"We realize that the demand for something more efficient in CD-R duplication was rising, so we set out on a mission to achieve four things: affordability, simple operation, reliability, and scalability." President and CEO David Wolfer said of the Stellar^2 project. "We've achieved all of these things and best of all, we did it ingeniously."

Unique in concept, unprecedented in its disk loading mechanism, and unparalleled in features, the Stellar^2 utilizes a "turntable" concept-quickly and accurately moving the discs without causing noise and vibration to the writers. The machine is reliable with few moving parts and a "clean," perfected design for long-term performance reliability.

The demand for CD-R duplication is not a new one, but as demand increases, expectations also double. Before the Stellar^2 was created, duplicating CD-Rs required expensive jukebox or time consuming caddie-tested systems. These machines are reliable, however, there is a new standard of efficiency, innovation and affordability brought together in the Stellar^2. The Stellar^2 will be available in stand-alone or PC hosted systems. Although pricing has not yet been released, it is estimated to be in the range of $6,000 to $7,000 – an affordable price for advanced innovation. Champion is currently appointing distributors for the Stellar^2 product line. Contact Champion for full details at Champion Duplicators Inc., 2305 South Vasco Road, Livermore, CA 94550. Phone: (510) 373-6060 or (888) 723-3475, Fax: (510) 373-8160, or E-mail: customercare@www.championsms.com, or http://www.championsms.com.

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For winners list (available after 6/30/98) send self-addressed, stamped envelope by 1/15/98 to: Super Prize Winners, P.O. Box 9193, Medford, NY 11763-9193.

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Winner will be determined in a random drawing on or about 5:00 pm (EST) the Monday following the issue date. You need not be present to win. The prize (and its retail value) detailed with the entry form is guaranteed to be awarded & delivered to winner approx. 30 days from drawing date. If notification letter or prize is returned as undeliverable, it will be awarded to an alternate winner at random. No prize substitutions except due to unavailability, in which case a prize of equal value will be awarded. Prize not transferable or redeemable for cash. All taxes on prize are winner's responsibility. Acceptance of prize constitutes permission (except where prohibited) to use winner's name, hometown & likeness for promotional purposes without additional compensation.

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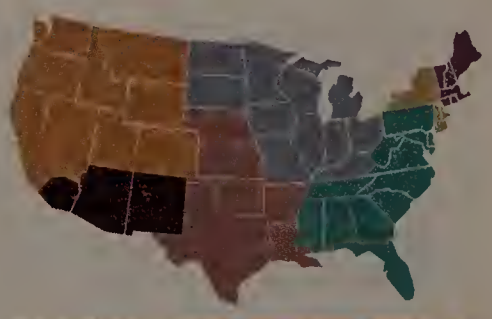

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STOCK TICKER

The Week in Stocks

Gainers

PERCENT

Newbridge Networks Corp.	23.1
ProCom Technology, Inc.	19.1
Arbor Software	19.0
National Semiconductor(H)	18.3
Cyrix(H)	17.8
Micron International Inc.	15.8
Yahoo! Inc.(H)	14.7
Retix	13.1

DOLLAR

Newbridge Networks Corp.	10.50
Texas Instruments	10.38
Arbor Software	7.50
National Semiconductor(H)	6.31
America On-Line	6.06
Dell Computer Corp.	5.94
Peoplesoft	5.81
Yahoo! Inc.(H)	5.75

Losers

PERCENT

American Mgmt. Systems	-23.2
Computervision Corp.(L)	-15.0
Gateway 2000 Inc.	-14.6
QMS Inc.	-14.6
Network Computing Devices	-9.7
Infoseek Corp.	-8.5
Netrix Corp.	-8.1
Ross Systems, Inc.	-8.1

DOLLAR

Gateway 2000 Inc.	-5.69
American Mgmt. Systems	-5.69
McAfee Associates	-3.13
Security Dynamics Tech.	-2.75
Computer Horizons	-2.75
Advanced Micro Devices	-2.56
Micron Technology	-2.38
Data General Corp.(H)	-2.25

INDUSTRY ALMANAC

MindSpring leads the pack

Analysts say Atlanta-based MindSpring Enterprises, Inc. (Nasdaq: MSPG) is the Internet service provider to watch because it may become the first large service provider to reach profitability.

The reason? Good old-fashioned customer service that results in low "churn" — the number of customers who sign up, then leave.

"How do you maintain a customer in the [Internet service provider] business? Don't screw up," says Jeff L. Sadler, an analyst at The Robinson-Humphrey Co. in Atlanta.

"If a [service provider] has high-quality service, customers tell friends, and they join," says Robert V. Bolen, an analyst at J. C. Bradford & Co. in Nashville.

MindSpring boasts 193,000 subscribers nationwide, mostly in the Southeast. About 30 cities in Western and Northeastern U.S. aren't yet connected to the system, but at least half those cities will be by the end of October, analysts say.

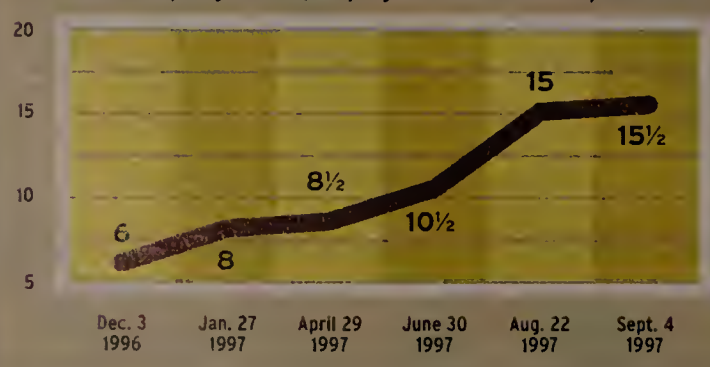
Sadler and Bolen both rate the stock a Strong Buy and expect the price to climb from its recent $15 per share to between $20 and $22 per share within six months.

MindSpring had positive cash flow for the first time in its second quarter, ended June 30. Revenue was $11.6 million, with a loss of $1.4 million, or 19 cents per share. MindSpring also is expected to post fourth-quarter profits, Bolen says, and to show earnings of 85 cents per share for 1998. "It will be the first [Internet service provider] to achieve profitability," he says.

Both analysts say the prompt and friendly response of service representatives helps MindSpring keep customers. "Customer reps are compensated to solve problems and not just get off the phone," Bolen says. An unusual new MindSpring interface automatically tallies connection and other service problems that a service representative can quickly access to provide help. — Matt Hamblen

SPRINGING AHEAD

Analysts say good customer service has lowered MindSpring's costs, helping to boost its stock price



Exch	52-Week		Range	Sept. 5 2 PM	Wk Net Change	Wk Pct Change
Communications and Network Services					**UP 2.12%**	
COMS	81.38	24.00	3 COM Corp.	49.88	0.94	1.9
AIT	71.75	49.63	AMERITECH Corp.	64.25	1.94	3.1
ASND	80.25	36.13	Ascend Communications	41.00	-1.13	-2.7
T	42.63	30.75	AT & T	40.00	1.00	2.6
BNYN	6.50	1.19	Banyan Systems Inc.	2.28	-0.03	-1.4
BAY	37.75	15.38	Bay Networks Inc.	36.94	2.00	5.7
BEL	78.25	55.13	Bell Atlantic Corp.	76.25	3.13	4.3
BLS	48.81	35.25	Bellsouth Corp.	45.00	1.00	2.3
BRKT	42.25	9.25	Brooktrout Technology	11.44	-0.06	-0.5
CS	46.50	27.50	Cabletron Systems	33.69	3.06	10.0
CGRM	16.50	8.63	Centigram Communications	14.25	-0.25	-1.7
CSCO	83.25	45.25	Cisco Systems Inc.	77.81	2.19	2.9
CMNT	7.00	3.31	Computer Network Tech.	5.31	0.06	1.2
DIGI	30.63	12.63	DSC Communications	30.00	0.81	2.8
FORE	43.63	10.00	FORE Systems Inc.	20.00	-0.75	-3.6
GDC	12.50	5.88	General Datacomm Inds.	7.13	-0.13	-1.7
GSX	53.00	36.13	General Signal Networks	44.75	1.25	2.9
GTE	49.38	37.75	GTE Corp.	45.50	1.44	3.3
LU	90.75	36.25	Lucent Tech.	82.56	4.75	6.1
MADGF	16.13	4.50	Madge Networks NV	8.63	0.38	4.5
MCIC	43.38	23.88	MCI Communications Corp.	29.06	0.25	0.9
NETM	9.88	2.50	NetManage Inc.	3.03	-0.09	-3.0
NTRX	8.50	1.44	Netrix Corp.	2.13	-0.19	-8.1
NCDI	16.25	4.63	Network Computing Devices	10.50	-1.13	-9.7
NWK	22.38	11.13	Network Equipment Tech.	19.25	0.44	2.3
NETG	30.25	11.13	Network General	16.81	0.31	1.9
NN	55.88	26.50	Newbridge Networks Corp.	55.88	10.50	23.1
NT	107.19	48.50	Northern Telecom Ltd.	101.44	2.31	2.3
NOVL	13.00	6.28	Novell Inc.	9.19	-0.22	-2.3
OCTL	31.75	13.50	Octel Communications Corp.	30.31	0.00	0.0
ODSI	24.25	9.75	Optical Data Systems Inc.	11.13	0.56	5.3
PCTL	37.88	8.25	Picturetel Corp.	12.22	-0.09	-0.8
PTON	4.25	1.31	Proteon Inc.	1.75	0.06	3.7
RACO	6.38	1.50	Racotek Inc.	2.44	0.13	5.4
RETX	9.25	3.38	Retix	7.00	0.81	13.1
SBC	62.25	46.00	SBC Communications	57.13	3.06	5.7
SFA	24.94	12.38	Scientific Atlanta Inc.	22.00	0.56	2.6
SHVA	63.50	8.25	Shiva Corp.	14.69	0.31	2.2
FON	52.75	37.50	Sprint Corp.	46.88	0.06	0.1
SMSC	15.25	8.25	Standard Microsystems Corp.	11.31	0.50	4.6
USW	39.44	27.25	US West Inc.	36.44	0.56	1.6
XIRC	31.13	7.50	Xircom	13.88	-0.25	-1.8
XYLN	59.38	12.38	Xylan Corp.	20.44	0.00	0.0
PCs and Workstations					**UP 4.08%**	
AAPL	29.56	12.75	Apple Computer Inc.	22.31	0.56	2.6
CPQ	69.50	20.50	Compaq Computer Corp. (H)	69.38	3.81	5.8
DELL	88.25	16.38	Dell Computer Corp.	88.25	5.94	7.2
GTW	46.25	19.38	Gateway 2000 Inc.	33.31	-5.69	-14.6
HWP	71.50	42.50	Hewlett Packard Co.	64.94	2.94	4.7
MUEI	25.38	12.63	Micron International Inc.	18.81	2.56	15.8
NIPNY	74.00	52.50	NEC America	57.88	1.13	2.0
SGI	29.69	12.63	Silicon Graphics (H)	29.69	1.94	7.0
SUNW	53.31	25.50	Sun Microsystems Inc.	51.19	3.00	6.2
Large Systems					**UP 4.01%**	
AMH	14.00	8.13	Amdahl Corp.	12.38	0.06	0.5
DGN	37.94	10.25	Data General Corp. (H)	34.50	-2.25	-6.1
DEC	47.81	25.00	Digital Equipment Corp.	45.75	3.38	8.0
IBM	109.44	56.38	IBM	104.31	2.44	2.4
MDCD	9.63	2.88	Meridian Data Inc.	4.25	0.00	0.0
PRCM	20.13	9.00	ProCom Technology, Inc.	12.88	2.06	19.1
SQNT	31.25	10.75	Sequent Computer Sys.	29.25	1.25	4.5
TEXM	3.88	2.00	Sequoia Systems Inc.	2.94	0.13	4.4
SRA	59.38	17.25	Stratus Computer Inc. (H)	59.38	4.38	8.0
UIS	11.81	5.75	Unisys Corp.	11.31	-0.06	-0.5
Software					**UP 1.82%**	
ADBE	49.00	31.50	Adobe Systems Inc.	41.25	2.06	5.3
AMSWA	12.25	4.63	American Software Inc.	11.13	0.50	4.7
APLX	40.00	3.13	Applix Inc.	10.25	-0.75	-6.8
ARSW	46.88	17.00	Arbor Software	46.88	7.50	19.0
ADSK	47.00	21.00	Autodesk Inc.	43.56	0.44	1.0
BGSS	32.50	20.88	BGS Systems Inc.	28.13	0.63	2.3
BMCS	67.63	36.75	BMC Software Inc. (H)	66.38	3.63	5.8
BOOL	27.63	15.63	Boole and Babbage	26.25	0.75	2.9
BORL	9.81	4.75	Borland Int'l Inc.	9.00	0.13	1.4
BOBJY	20.50	6.63	Business Objects	7.94	0.13	1.6
CAYN	6.25	2.00	Cayenne Software Inc.	2.75	0.13	4.8
CNTR	5.88	1.13	Centura Software	1.63	0.13	8.3
CHKPF	36.25	15.63	Checkpoint Software Technolog	27.75	2.25	8.8
COGNF	39.50	21.50	Cognos Inc.	33.13	1.63	5.2
CA	71.81	37.25	Computer Associates	68.88	2.56	3.9
CVN	10.38	2.13	Computervision Corp. (L)	2.13	-0.38	-15.0
CPWR	65.38	20.25	Compuware Corp. (H)	63.00	1.13	1.8
CSRE	19.00	8.00	Comshare Inc.	8.25	0.06	0.8
COSFF	10.75	5.00	Corel Corp.	6.00	0.06	1.1
DWTI	6.63	2.25	Dataware Technologies Inc.	3.19	0.06	2.0
FILE	36.50	9.50	Filenet Corp.	17.63	-0.25	-1.4
FRTE	47.00	7.25	Forte Software	14.50	1.13	8.4
FTPS	8.63	3.50	FTP Software Inc.	3.59	-0.22	-5.7
HUMCF	41.63	22.00	Hummingbird Comm. Ltd.	41.00	2.75	7.2
HYSW	30.25	12.88	Hyperion Software Corp.	28.63	-0.44	-1.5
IRIC	18.88	11.13	Information Resources (H)	17.75	-0.38	-2.1
IFMX	31.13	6.56	Informix Corp.	9.06	0.03	0.3
INGR	12.63	6.25	Intergraph Corp.	10.00	0.25	2.6
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MATH	6.75	2.19	MathSoft	2.75	-0.19	-6.4
MCAF	78.50	36.50	McAfee Associates	54.00	-3.13	-5.5
MENT	14.00	6.50	Mentor Graphics	11.94	0.19	1.6
MIFGY	36.38	10.63	Micro Focus	33.38	0.13	0.4
MGXI	11.38	4.00	Micrografx Inc.	7.25	-0.25	-3.3
MSFT	150.75	60.38	Microsoft Corp.	137.06	4.19	3.2
ORCL	42.13	22.50	Oracle Corp.	39.13	1.31	3.5
PMTC	64.25	37.50	Parametric Technology	46.13	0.00	0.0
PARQ	4.88	0.88	ParcPlace Systems Inc.	1.28	0.03	2.5
PSFT	66.38	30.63	Peoplesoft	61.00	5.81	10.5
PTEC	19.75	11.00	Phoenix Technologies	16.25	1.00	6.6
PSQL	13.75	6.50	Platinum Software	11.81	1.06	9.9
PLAT	25.00	10.13	Platinum Technology (H)	22.88	-0.63	-2.7
PRGS	23.00	12.63	Progress Software Corp.	18.50	0.69	3.9
RNBO	22.13	13.75	Rainbow Technologies Inc.	18.31	-0.06	-0.3
REDB	28.00	5.00	Red Brick Systems Inc.	9.50	-0.75	-7.3
ROSS	9.75	1.75	Ross Systems, Inc.	3.56	-0.31	-8.1
SAPE	61.00	30.00	Sapient Corp.	56.25	1.00	1.8
SCOC	8.63	3.13	SCO Inc.	6.69	0.75	12.6
SDTI	44.38	21.00	Security Dynamics Tech	36.38	-2.75	-7.0
SOTA	15.25	8.88	State of the Art	14.38	0.38	2.7
SSW	78.88	27.25	Sterling Software Inc.	35.88	1.63	4.7
SDRC	29.13	17.13	Struct. Dynamics Research	27.13	0.75	2.8
SYBS	21.13	12.13	Sybase Inc.	19.63	1.25	6.8
SYMC	25.63	8.75	Symantec Corp	23.88	0.00	0.0
SNPS	50.50	21.75	Synopsys	35.63	1.00	2.9
SSAX	17.63	3.88	System Software Assoc.	15.25	0.13	0.8
SYSF	36.50	7.38	Systemsoft Corp.	8.19	-0.50	-5.8
TRUV	5.63	1.50	Truevision Corp.	2.06	0.19	10.0
VIEW	19.88	8.38	ViewLogic Systems (H)	18.94	1.19	6.7
VMRK	10.00	5.50	VMark Software Inc.	9.63	0.19	2.0
WALK	16.25	10.38	Walker Interactive Systems	14.63	0.50	3.5
WALL	29.13	12.25	Wall Data Inc.	17.63	0.13	0.7
WANG	24.06	16.00	Wang Laboratories Inc.	21.50	1.75	8.9
Internet					**UP 5.1%**	
AMZN	30.88	15.75	Amazon.com	30.50	2.38	8.4
AOL	75.50	22.38	America On-Line	70.81	6.06	9.4
ATHM	25.50	16.63	At Home Corp.	19.75	0.69	3.6
CSRV	16.75	8.63	Compuserve Corp.	13.00	0.56	4.5
EDFY	25.75	8.88	Edify Corp.	14.25	-0.25	-1.7
XCIT	24.75	5.00	Excite, Inc. (H)	22.88	-0.63	-2.7
SEEK	11.50	4.38	Infoseek Corp.	8.13	-0.75	-8.5
LCOS	34.63	6.00	Lycos Inc. (H)	33.38	2.25	7.2
NETC	20.00	7.88	Netcom On-Line	13.00	-0.31	-2.3
N5CP	65.00	23.50	Netscape Comm. Corp.	42.38	2.81	7.1
OMKT	25.50	6.50	Open Market Inc.	11.38	0.56	5.2
PSIX	14.50	5.50	PSINet	8.00	-0.06	-0.8
QDEK	8.88	2.00	Quarterdeck Corp	2.56	-0.03	-1.2
RAPT	25.75	8.88	Raptor Systems	13.88	-0.13	-0.9
SCUR	14.50	4.75	Secure Computing Corp.	6.25	0.38	6.4
SPYG	20.25	6.00	Spyglass Inc.	9.06	0.38	4.3
YHOO	44.75	11.25	Yahoo! Inc. (H)	44.75	5.75	14.7
Semiconductors					**UP 2.52%**	
AMD	48.50	12.13	Advanced Micro Devices	35.06	-2.56	-6.8
ADI	36.25	17.13	Analog Devices Inc.	34.00	0.88	2.6
CHPS	26.50	7.88	Chips and Technologies	16.81	0.00	0.0
CRUS	24.25	8.00	Cirrus Logic	16.88	-0.25	-1.5
CY	18.13	10.00	Cypress Semiconductor Corp. (H)	18.00	0.25	1.4
CYRX	33.13	11.50	Cyrix (H)	33.13	5.00	17.8
INTC	102.00	39.25	Intel Corp.	95.00	2.44	2.6
LSCC	71.63	24.00	Lattice Semiconductor	64.69	-0.31	-0.5
LSI	46.88	20.13	LSI Logic Corp.	32.00	-0.31	-1.0
MCRL	36.88	8.88	Micrel Semiconductor Inc. (H)	36.00	0.00	0.0
MU	60.06	20.38	Micron Technology	42.19	-2.38	-5.3
MOT	90.50	44.13	Motorola Inc.	75.94	2.38	3.2
NSM	40.81	16.63	National Semiconductor (H)	40.81	6.31	18.3
TXN	131.31	43.63	Texas Instruments	124.94	10.38	9.1
VLSI	34.88	12.50	VLSI Technology (H)	33.75	1.00	3.1
XLNX	58.50	29.88	Xilinx	48.00	-0.13	-0.3
ZLG	29.50	14.88	Zilog Inc.	24.50	0.06	0.3
Peripherals and Subsystems					**UP 0.36%**	
ADPT	51.38	23.38	Adaptec Inc.	48.50	0.75	1.6
APCC	31.50	12.88	American Power Conversion	26.00	-0.50	-1.9
CREAF	25.25	3.63	Creative Technology Ltd.	21.19	1.94	10.1
RACE	24.50	6.50	Data Race Inc. (L)	7.50	0.19	2.6
DTM	12.50	6.75	Dataram Corp.	8.75	0.00	0.0
EMC	54.50	18.88	EMC Corp.	53.75	2.56	5.0
EMLX	21.25	13.25	Emulex Corp.	17.50	2.00	12.9
ESCC	30.75	20.00	Evans and Sutherland	29.88	-0.13	-0.4
EXBT	17.50	9.50	Exabyte	12.13	0.28	2.4
IISLF	2.63	1.09	Intelligent Info. Systems	1.09	-0.09	-7.9
IOM	28.13	13.00	Iomega Corp. (H)	28.13	2.38	9.2
IPLS	2.75	0.94	IPL Systems Inc.	1.88	0.13	7.1
KMAG	36.75	15.31	Komag Inc.	17.28	-0.22	-1.3
MTSI	34.88	13.75	MicroTouch Systems Inc.	31.75	0.13	0.4
MTIC	8.56	1.69	MTI Technology Corp.	7.81	-0.31	-3.8
PNCL	8.75	0.59	Pinnacle Micro Inc.	1.00	-0.06	-5.9
AQM	6.38	2.38	QMS Inc.	2.56	-0.44	-14.6
QNTM	37.88	7.13	Quantum Corp.	33.75	-1.56	-4.4
RDUS	2.06	0.19	Radius Inc.	0.53	0.03	6.3
SEG	56.25	22.63	Seagate Technology	36.38	-1.81	-4.7
SOS	19.63	9.75	Storage Computer Corp.	12.13	-0.50	-4.0
STK	54.38	32.63	Storage Technology	49.38	-1.69	-3.3
TEK	65.25	37.00	Tektronix Inc.	57.88	1.38	2.4
WDC	54.75	16.75	Western Digital Corp.	47.13	-1.00	-2.1
XRX	84.50	44.63	Xerox Corp.	77.81	2.44	3.2
Services					**UP 1.94%**	
AMSY	37.13	15.75	American Mgmt. Systems	18.88	-5.69	-23.2
ANLY	42.00	18.25	Analysts Int'l	36.00	1.00	2.9
AUD	50.44	26.56	Auto Data Processing	46.06	0.88	1.9
BDMI	30.75	19.75	BDM International Inc.	25.25	0.19	0.7
CATP	38.94	21.25	Cambridge Tech. Partners	32.88	0.88	2.7
CEN	53.13	29.50	Ceridian Corp.	34.63	-0.25	-0.7
CDO	29.44	17.38	Comdisco Inc.	28.56	1.31	4.8
CPU	32.88	13.25	CompUSA Inc. (H)	32.63	1.38	4.4
CHRZ	45.63	15.38	Computer Horizons	37.38	-2.75	-6.9
CSC	86.50	57.88	Computer Sciences	75.13	0.56	0.8
TSK	49.19	14.00	Computer Task Group	48.50	2.63	5.7
CDAT	28.63	12.75	Control Data Systems Inc.	20.00	-0.25	-1.2
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EDS	63.38	31.75	Electronic Data Systems Corp.	37.38	-0.06	-0.2
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INEL	10.75	2.25	Intelligent Electronics	4.13	0.00	0.0
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MICA	29.00	12.31	Micro Age Inc (H)	28.00	-0.97	-3.3
PAYX	42.50	25.63	Paychex	34.44	0.56	1.7
PMS	64.00	33.13	Policy Management Sys. (H)	64.00	3.75	6.2
REY	30.63	13.75	Reynolds and Reynolds	21.06	0.94	4.7
SCBI	18.75	10.75	SCB Computer Tech. Inc. (H)	18.75	1.25	7.1
SEIC	30.00	18.75	SEI Corp.	29.50	0.75	2.6
SMED	61.75	36.75	Shared Medical Systems	52.06	3.19	6.5
SSPE	33.50	10.00	Software Spectrum Inc.	16.00	1.13	7.6
SDS	54.25	37.00	Sungard Data Systems	52.06	-0.13	-0.2
VST	29.75	6.50	VanStar Corp.	14.88	-0.31	-2.1

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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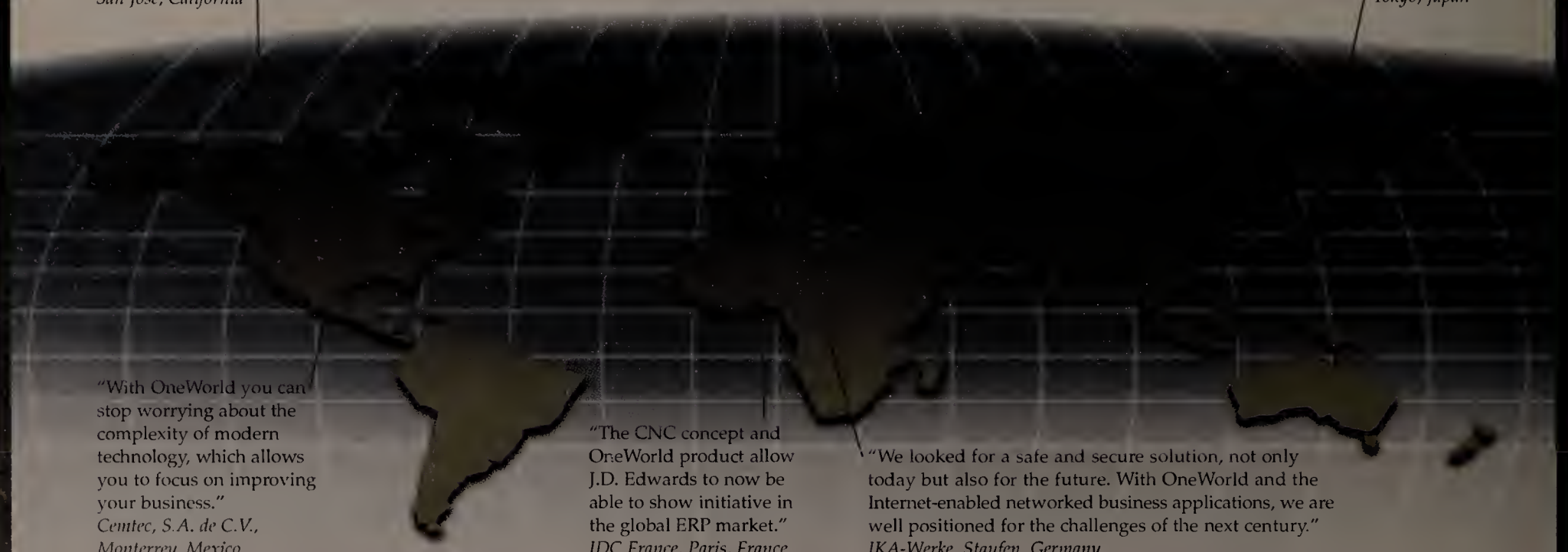

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Companies wake up to E-mail liabilities

CONTINUED FROM COVER 1

in the same light as written communication.

Several corporate giants, including Citibank and Morgan Stanley & Co., have been sued for millions of dollars during the past year by workers over the contents of E-mail messages. Similarly, Andersen Consulting is defending a $100 million lawsuit in which E-mail messages left on a client's computer by Andersen consultants are expected to be key.

Texaco's Betty Zimmerman: The messaging system shouldn't be used as an archive

"People say things in E-mail messages that they would never say directly to another person," said Ken Bass, a partner in The Venable Law Firm in Washington. The fact that companies are being sued over comments made by employees isn't new. "It's just never been done in such a producible format," Bass said. Conversations that are now recorded via E-mail messages used to take place on the telephone or at cocktail parties, he said.

As a result, information systems departments increasingly are scrambling to shore up E-mail policies as a defense against costly litigation.

Specifically, they are looking at purging E-mail files faster and becoming more aggressive about regularly reading employee E-mail.

A recent survey of 138 readers of *Security Management* magazine indicated that only 47% of the respondents have an E-mail policy. Of those, fewer than half make employees sign the policy. The American Society for Industrial Security, the trade group that publishes *Security Management*, is in Arlington, Va.

Part of the problem — and the reason there aren't many companies talking about how they are dealing with the changing role of E-mail — is that there aren't a lot of choices for them.

Those efforts are hindered in part by the fact that although IS can set guidelines for E-mail usage, workers are in control when it comes to the contents of their messages.

There are technical answers in the form of monitoring software, but that's in its infancy. So at this point, companies are reevaluating, consulting lawyers and scratching their heads.

But some are taking action.

Chris Whitman, a project leader at Ernst & Young LLP in New York, said his firm is devising a plan for deleting old E-mail. It is considering a system that will automatically purge messages after a certain time period, he said.

Companies typically hold on to messages anywhere from 90 days to a year. But because E-mail must be turned over in the event of a lawsuit, most sites are looking to purge them as quickly as possible. Attorneys suggest that period should be less than one year.

Not purging old mail can have painful consequences. For example, some lawsuits have centered around private banter. Chevron Corp. in 1995 paid more than $2 million to four female employees to settle their claim that they were harassed by sexually explicit E-mail messages, including, "25 reasons beer is better than women."

In the Morgan Stanley and Citibank cases, white managers are accused of circulating E-mail messages that poked fun at "Ebonics." Andersen may have gotten into hot water with client UOP, a petrochemical company in Des Plaines, Ill., by detailing in E-mail how it had lost key talent and would have trouble completing the engagement.

But the problem with quickly zapping E-mail is that users' inboxes have become storehouses of corporate information. Attachments, which may include correspondence, contracts and presentations, are increasingly sent along with messages, said Roger Mizumori, a principal at Rapport Communication in Washington. He is a member of the Electronic Messaging Association's Message Retention Workgroup, which is about to publish guidelines for determining how long companies should hold on to E-mail.

Members of the committee said it is best to separate E-mail messages from attachments, saving business-related attachments in a separate document system.

"If a business document, such as an invoice, is attached to an E-mail message, that document should be moved to a document management system for retention," said Betty Zimmerman, manager of messaging at Texaco, Inc. and chair of the Message Retention Workgroup. "The messaging system should not carry the burden [of storing documents on a long-term basis]," she said.

Although companies seem to be getting a handle on the message retention issue, they are more perplexed by imposing stricter guidelines on the use of E-mail or monitoring E-mail.

"If you get too restrictive about it, you are destroying the whole purpose of E-mail," said Roger Walters, vice president of IS at Booz Allen & Hamilton, Inc. in Chicago. On the other hand, the speed and ease of E-mail often spurs casual and reckless comments, he said.

When the Andersen case became public, Booz Allen used it as an opportunity to remind workers that "E-mail is not as private as you may think," Walters said.

Several sites said they would like to get more aggressive about monitoring E-mail, but they are reluctant to implement policies that would be a nightmare to enforce.

Software, such as Vienna, Va.-based SRA International's Assentor, may help companies that are looking for ways to keep tabs on E-mail. Assentor scans the contents of E-mail messages in search of certain "hot" words that can be defined by system administrators. The software is being beta-tested at several large brokerages. □

What to consider when developing an E-mail policy

1. If employees should use E-mail for personal use
2. If employees should waive any claims to privacy if they use the E-mail system for personal use
3. If employees should be obligated to take steps toward password-protecting personal messages
4. Clearly spelling out what E-mail is to be used for
5. Disclosing the policy to employees

Source: Electronic Messaging Association's Privacy Tool Kit

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For these and related links, point your browser at *www.computerworld.com/links/97090 8emaillinks.html*

Discovery of E-mail messages — electronic smoking guns: *www.dlalaw.com/computer/articles/discovery-of-email.html*

Access to, use and disclosure of E-mail on company computer systems: A tool kit for formulating your company's policy: *www.ema.org/html/pubs/mmv2n1/viewwash.htm*

Exchange 5.5 slated to solve scalability woes

By Barb Cole-Gomolski

USERS AT the Microsoft Corp. Exchange Conference later this month will hear more details about the soon-to-be-released upgrade of the messaging server and its planned integration with Windows NT 5.0.

Microsoft officials said no formal product announcements are slated for the conference, to be held Sept. 28 to Oct. 1 in San Diego.

But the company is expected to announce that it is shipping a release candidate version of the Exchange upgrade — which sources said will be called Exchange 5.5 — the week before the conference. Microsoft has said the upgrade will ship by year's end.

Taking center stage at Microsoft's Exchange show

- Exchange 5.5
- Integration with Windows NT 5.0
- Improved Internet hooks

HIGHER LIMITS

Several users said they expect Exchange 5.5 to solve some key scalability problems that have dogged large sites.

Specifically, it will lift the 16G-byte limit on message stores, allowing companies to run more users per server than the couple of hundred they can now support.

"We're waiting on the larger message store and some overall performance improvements," said Bob Cavallaro, director of advanced technologies at American International Group, Inc. in New York, which is moving several thousand users to Exchange.

Version 5.5 also is expected to support the Internet Message Access Protocol 4, which gives remote users more flexibility in the way they access Internet mail. Also on tap for Version 5.5 is support for Lightweight Directory Access Protocol standards, which let users look up and modify directory entries using a World Wide Web browser.

Microsoft also is expected to give details on how Exchange will take advantage of Windows NT 5.0's Active Directory. That could be key to large sites, which have found it difficult to add and move Exchange users between sites.

"The integration with NT 5.0 will fix all that," said Jerry Condon, a systems integrator at IKON Technologies, Inc., a Version 5.5 beta site in Seattle. It will be much easier to set up Exchange networks after NT 5.0 ships, Condon said. □

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COMMENTARY

Alignment? The news is better than you think

Bill Laberis

Later this year, CSC Index, the management consulting firm, will send out questionnaires for its widely respected annual survey of IT management issues.

The results taken from senior information technology managers in North America will be sorted and tallied, then reported early next year.

But you don't have to wait until then to learn the most critical findings. Very likely, the No. 1 issue for IT managers next year will be aligning IT with the goals of the business. The only real question is the margin of victory.

How do I know? "Aligning IT and the business" was No. 1 in this year's CSC Index poll, as it was last year. And it was No. 1 the year before *that*. This year, it was a stronger No. 1 than ever before.

The results seem to indicate that IT's goal of aligning itself with the business is as elusive as ever. That's extraordinary, given the tidal wave of attention and effort aimed squarely at solving this modern-day riddle.

But I think you're beating yourself up unnecessarily. I think you're railing against a perception of misalignment, not a reality.

Can that be? Have the billions spent on consultants, seminars, realignments, reorganizations, re-engineering and reassessments — all designed to unite IT and the business — paid off? If so, why after a decade of these discombobulations does IS believe that IT and business remain largely unaligned?

There are three main reasons:

Failure to prove ROI. The brilliant Paul Strassmann opened a Pandora's Box 10 years ago with research that showed there isn't necessarily a relationship between spending a lot on IT and garnering business value. Strassmann's research got everyone thinking about "IT investments" and whether they actually pay off. Thus began a futile effort to show return on investment for every IT dollar spent. The theory was, if you can prove ROI, you can certainly prove IT's value to the business and thereby more closely align the two.

Show me where ROI calculations are any better today than in the past. We don't have real measures. In fact, we may be further from proving ROI today than ever, given that the justification for financing today's intranets is often, "We'll be better off if people are connected to one another."

That's ROI? No, and ROI isn't a good way to measure IT/business alignment.

Complexity has reimmersed CIOs in technology. For a while, CIOs decoupled themselves from many technology endeavors and majored instead in business. But the complexity of open systems and hybrid computing environments has pulled the top IT people back into their roles as chief technologists. It can be no other way, and that means less time to think business. You know, when you're up to your arse in alligators . . .

The IT/business alignment responsibility is dispersed today. You see, business and IT are far more closely aligned than ever before. It's just that senior IT and business never achieved the CIO vision of 10 years ago. The responsibility for that is now dispersed among several groups and individuals: IT, CEOs, CFOs, user department heads and even discrete users.

You haven't failed in this great endeavor. The underlying dynamics, mainly the universal acceptance and use of IT throughout the enterprise, changed the game. Look at the profitability and health of U.S. business today. You can only conclude that you and the other IT-business alignment specialists have done your job just fine. □

Laberis was editor in chief at Computerworld *from 1986 to 1996. He is president of Bill Laberis Associates, a consulting and publishing company in Holliston, Mass. His Internet address is bill@laberis.com.*

All business is local

David Moschella

You hear it all the time. The Internet makes distance irrelevant; it doesn't recognize national borders; it is the manifestation of the global village that Marshall McCluhan forecast.

There is an amazing number of extremists — especially at *Wired* magazine — who predict the transformation of politics and even the loss of national sovereignty and cultural independence.

Although the Internet is fundamentally oblivious to physical distance and human-imposed geography, so is the telephone system. The idea that either will lead to a borderless world eventually will be proven much more wrong than right. A decade hence, history will show that the Internet era resulted in a far more local and multinational IT industry. Ironically, it will be the PC era that will be viewed as the high-water mark of a purely global technology business.

Consider how homogeneous the PC era really was. The same components — microprocessors, operating systems, disk drives and so on — were used from Rome to Tokyo to Buenos Aires. Whether used in stand-alone or networked mode, the applications were virtually identical. It was this very homogeneity that made it possible for U.S. suppliers to be so successful around the world.

Now consider the network era. National infrastructures will vary substantially in both capacity and technology. They will consist of various mixes of copper, cable, optical fiber, satellites and cellular technology. And they'll be managed through diverse market and regulatory processes.

Additionally, the applications of the 'net already are far more diverse than those in the PC era, and that will continue. Each nation will have its own cast of leading IT vendors, with country telcommunications companies, Internet service providers and Web site providers dominating most service delivery. Today's U.S. leaders increasingly will have to share our industry's wealth.

Many of the underlying Internet hardware and software products still will be sold globally. But those products will become subordinate to network content and services that will define what the Internet is to most businesses and consumers. From a value-chain perspective, network services comprise a powerful new — mostly locally defined — layer that sits on top of hardware and software technology.

The Internet era represents the convergence of the computer, telecommunications and content/media industries. Despite a number of important global players, the latter two businesses are, in sharp contrast to today's computer business, overwhelmingly owned and managed by in-country organizations.

The use of the Internet more and more will be grounded in what people actually want to do. And most people have more to say to their local friends, family, school and workplace than they do to anyone halfway around the globe. Even today, only about 10% of phone revenues are international. Because this figure is due more to weak demand than high costs, the percentage is rising slowly as prices fall rapidly.

Between those top-down and bottom-up perspectives lie today's practical realities. Some governments will make extensive use of the 'net, and some won't. The same is true for schools, communities, families and, of course, industries. Those wide differences in use will be determined and driven, as much as anything, by national and local laws, customs, tastes, cultures and languages.

The 'net could eliminate borders, countries, states and so on if that's what people and nations really wanted. But evidence suggests they don't. Former U.S. Speaker of the House Tip O'Neill liked to say "All politics is local." When people look back at the impact of the 'net, they will say the same about the Web. □

Moschella is an author, independent consultant and weekly columnist for Computerworld. *His Internet address is david_moschella@cw.com*

The Back Page

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Dispatches & images from the fringes of the electronic frontier

CITIZEN'S VIRTUAL BANK TELLER

Customers of Citizens Bank in Evansville, Ind., can already touch the future of banking with a teller machine that does more than dispense cash. The TouchTeller kiosk from North Communications in Marina del Ray, Calif., lets customers apply for a home, auto or personal loan, open an account and print loan applications on a laser printer. Customers also can speak to a live teller via videoconferencing. Twenty-five accounts were opened at the kiosk on its first full day of operation.

Patent watch

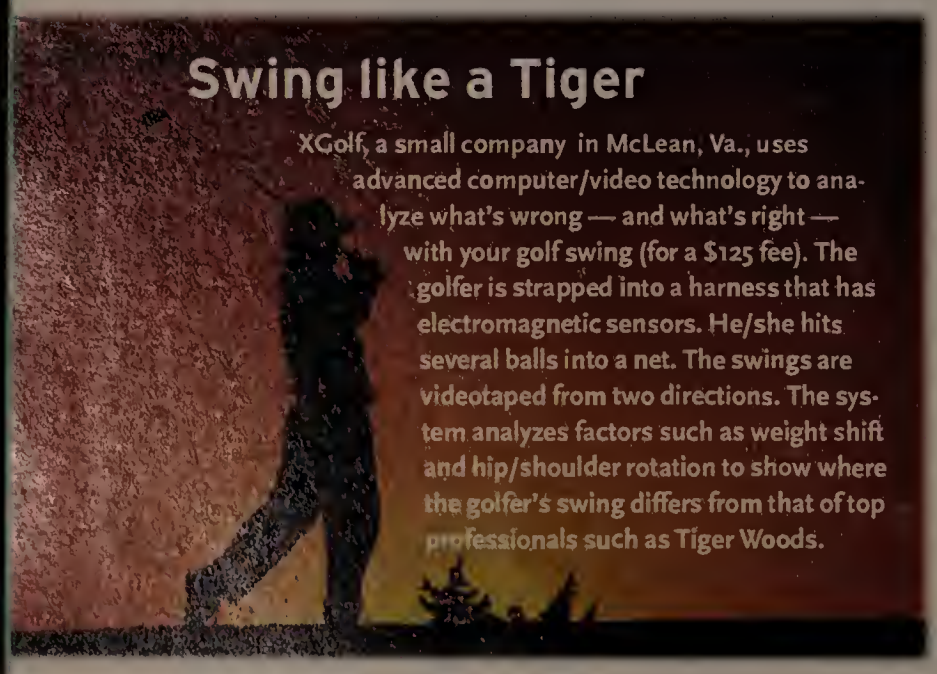
Recently issued U.S. patents (number, inventor/assignee, date)

Online presentation of weather reports. Local weather forecasters feed audio/visual reports into a computerized "presentation generator" that formats the Internet presentation. (5,654,886, WSI Corp., Billerica, Mass., Aug. 5)

Intelligent screen cursor. The cursor has small icons that provide dynamic feedback to a user about what mouse click or drag operations can be performed based on where the cursor is on the screen. (5,655,093, Borland International, Scotts Valley, Calif., Aug.5)

A "smart electronic sensor and diagnostic system" that determines whether a car's air bag can be safely deployed. If sensors indicate that the occupant is too close to the air bag, and thus could be injured by the air bag, deployment is prevented. (5,653,462, Automotive Technologies International, Boonton, N.J.)

Source: MicroPatent (www.micropat.com)



Swing like a Tiger

XGolf, a small company in McLean, Va., uses advanced computer/video technology to analyze what's wrong — and what's right — with your golf swing (for a $125 fee). The golfer is strapped into a harness that has electromagnetic sensors. He/she hits several balls into a net. The swings are videotaped from two directions. The system analyzes factors such as weight shift and hip/shoulder rotation to show where the golfer's swing differs from that of top professionals such as Tiger Woods.

Web pages that crinkle from use

Researchers at Bell Labs have developed a Web page that turns yellow and crinkles in front of your eyes — just as an old piece of loose-leaf paper would after being handled by thousands of humans. Algorithms automatically "age" the Web page based on the amount of traffic it endures (see www.multimedia.bell-labs.com/metaphorium).

"Web pages are touched by thousands of people each day, and there must be a way to convey the age of the page itself," says Doree Seligmann, co-developer of the virtual paper. The Web desperately needs "signs of life and interaction in order to become more engaging," the researcher says.

Inside Lines

A Web site with taste

We were disappointed with the way hausfrau extraordinaire Martha Stewart built her *Martha Stewart Living* World Wide Web site, scheduled to debut today at *www.marthastewart.com*. Rather than building it with some aluminum foil, pine cones, brightly colored bits of string and other things you'd commonly find lying around the house, she took the easy way out and used computers and software.

Curses, foiled again

Has there been a sale on extra-strength Reynolds Wrap in the Redmond, Wash., area? Let's hope Microsoft had a practical reason for wrapping the invitation to its Sept. 30 Internet Explorer launch in a piece of aluminum foil embossed with the product logo and the phrase, "The Web the way you want it." Want it in shiny foil?

This is Redmond, calling Base Camp

Microsoft is set to announce within a month a new technology that will enhance and simplify remote access in products such as Windows NT Server, sources close to the company said. Code-named Base Camp, the software will be incorporated into Microsoft's Remote Access Service to make it easier to telecommute by simplifying the process of accessing the corporate server via the Internet.

Not the same as it ever was

Sybase's parallel database appears to be on the way to the software graveyard, at least as a product in its own right. Company officials said the Sybase MPP software remains an "orderable product." But ongoing parallel development is aimed at coming up with a so-called multinode option to Sybase's mainstream Adaptive Server Enterprise database, officials said. Lips were sealed as to when that will be.

I shot the SHERIFF

MCI Communications and British Telecom, soon to merge as Concert, will attack the problem of fraud in international toll calls with a program dubbed SHERIFF. It uses artificial intelligence to detect data patterns and predict where fraud may occur. SHERIFF also takes the use of acronyms to a new level; it stands for Statistical Heuristic Engine to Reliably and Intelligently Fight Fraud.

Swamp thing

Disease and pestilence are haunting major application package vendors. SAP AG had to deal with a mosquito-borne encephalitis outbreak last week at its user group conference in Orlando, Fla. Now it's PeopleSoft's turn. The Pleasanton, Calif.-based vendor will kick off its user group conference this week in Orlando with free mosquito spray for all. PeopleSoft sent warning letters to attendees last week telling them they should wear long-sleeve shirts and pants, stay indoors and use the spray that will be provided. Users of Oracle software will need to gear up next week when its user group throws its biannual conference in Orlando. Message to application vendors: Get out of the swamps!

Roma Candle

Candle Corp. is readying a middleware development tool, code-named Roma, that will let users program one way for all their different middleware products. Beta testing will begin later this year, with shipment next year. Although middleware masks data communications complexity between different applications and platforms, users still need to write to the different APIs for each product. This will smooth that process and cut down on implementation time.

Gartner Group continues to do its part to promote the use of puffy euphemisms. Vendors taking part in Gartner's CPP '97 parallel processing conference in Chicago this week won't push their wares on user attendees in anything so prosaic as booths. Instead, their exhibition spaces are called "consultation areas." We wouldn't want people to think anything as gauche as selling was going on there, would we? If you want to consult with news editor Patricia Keefe, get in touch at (508) 820-8183 or E-mail her at patricia_keefe@cw.com.

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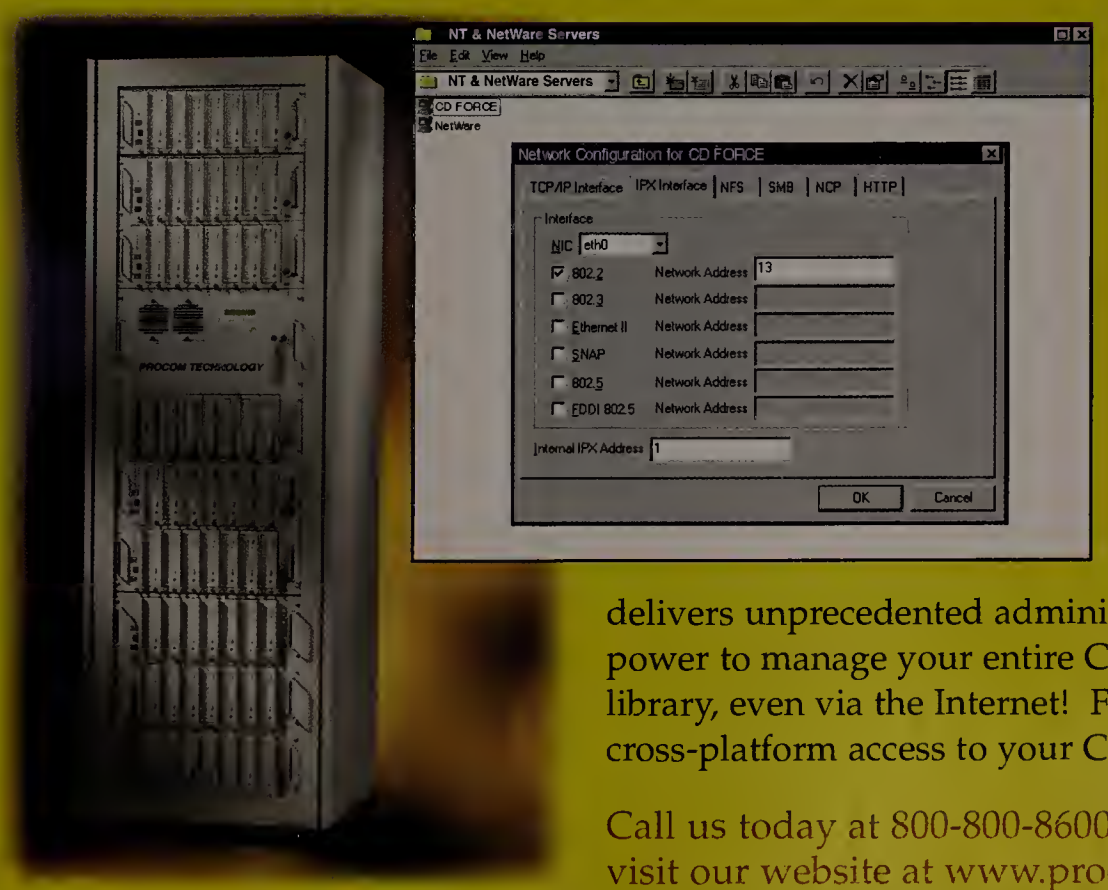

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